

PACIFIC SEABIRDS



A Publication of the Pacific Seabird Group

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PACIFIC SEABIRD GROUP

Dedicated to the Study and Conservation of Pacific Seabirds
and Their Environment

The Pacific Seabird Group (PSG) was formed in 1972 due to the need for better communication among Pacific seabird researchers. PSG provides a forum for the research activities of its members, promotes the conservation of seabirds, and informs members and the public of issues relating to Pacific Ocean seabirds and their environment. PSG members include research scientists, conservation professionals, and members of the public from all parts of the Pacific Ocean. The group also welcomes seabird professionals and enthusiasts in other parts of the world. PSG holds annual meetings at which scientific papers and symposia are presented; abstracts are published on our web site. The group is active in promoting conservation of seabirds, include seabird/fisheries interactions, monitoring of seabird populations, seabird restoration following oil spills, establishment of seabird sanctuaries, and endangered species. Policy statements are issued on conservation issues of critical importance. PSG's journals are *Pacific Seabirds* (formerly the *PSG Bulletin*) and *Marine Ornithology*. Other publications include symposium volumes and technical reports; these are listed near the back of this issue. PSG is a member of the International Union for Conservation of Nature (IUCN), the Ornithological Council, and the American Bird Conservancy. Annual dues for membership are \$30 (individual and family); \$24 (student, undergraduate and graduate); and \$900 (Life Membership, payable in five \$180 installments). Dues are payable to the Treasurer; see the PSG web site, or the Membership/Order Form next to inside back cover.

World Wide Web Site

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Pacific Seabirds

Pacific Seabirds publishes short peer-reviewed articles, reports of ongoing work, conservation news, and other items of importance to conservation of seabirds in the Pacific Ocean. The journal is published twice a year in spring and fall. Materials should be submitted to the Editor, except that conservation-related material should be submitted to the Associate Editor for Conservation. Information for contributors to *Pacific Seabirds* is published in each Fall issue. Back issues of the *Bulletin* or *Pacific Seabirds* are posted on the group's web site or may be ordered from the treasurer (see Membership/Order Form next to inside back cover for details). Submission deadlines are April 1 for the spring issue and October 1 for the fall issue; manuscripts may be submitted at any time.

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Marine Ornithology

Marine Ornithology presents peer-reviewed contributions concerning international seabird science and conservation. The journal is published two times a year. It is available on its web site or by subscription. The journal is supported by a partnership of global seabird societies, including the Pacific Seabird Group (PSG), the African Seabird Group, the Australasian Seabird Group, the Seabird Group (U.K.), the Dutch Seabird Group, and the Japan Seabird Group. For further information see www.marineornithology.org

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REPORT

Reports provide up-to-date information on current research and issues. They are not peer-reviewed and should not be cited without the author's permission.

MONITORING OF NESTING RED-TAILED TROPICBIRDS IN SOUTHEASTERN OAHU, 2007

Eric A. VanderWerf

INTRODUCTION

Two species of tropicbirds are regular breeders in the Hawaiian Islands, the Red-tailed Tropicbird (*Phaethon rubricauda*) and the White-tailed Tropicbird (*P. lepturus*). Both species nest primarily on predator-free offshore islands or on steep cliffs of the main islands, where they are safe from introduced predators such as feral cats, mongoose (*Herpestes auropunctatus*), and rats (*Rattus spp.*) (Harrison 1990). White-tailed Tropicbirds are more widespread in the main Hawaiian Islands, nesting on steep cliffs in montane valleys or along the coast. Red-tailed Tropicbirds are common throughout the Northwestern Hawaiian Islands, but they have a restricted distribution in the main islands, nesting on rocky coasts in just a few locations, including Kilauea Point, Kauai, Manana Islet off Oahu, Moku-puku Islet off north Kohala, Hawaii, and along the Ka Iwi coast of southeastern Oahu. The small colony in southeastern Oahu has persisted despite its proximity to a busy road and the presumed presence of numerous alien predators. This report provides data on the reproductive success of Red-tailed Tropicbirds attempting to nest along the Ka Iwi coast of Oahu in 2007. Monitoring of this colony began in 2006, though information on some nests was collected in 2005. This information can be used to help assess whether this colony is threatened by introduced predators and whether predator control or any other management may be needed.

METHODS

Nesting activity of Red-tailed Tropicbirds along the Ka Iwi coast of Oahu from Lanai Lookout to Halona Point (blowhole) was monitored from late January to early September. The terrain in this area consists of steep rocky cliffs made of soft volcanic tuff that erodes relatively easily, producing a variety of ledges, small caves, and rocky rubble. Three areas used for nesting were located by the presence of adult tropicbirds exhibiting aerial courtship behavior and by searching on foot for nests along the cliffs. To facilitate monitoring, each cave and ledge that contained bird droppings was marked with a number using white nail polish. All marked sites were checked at roughly weekly intervals and the contents of each site were recorded, until all nests had either failed or fledged.

Nest success was calculated as the proportion of nests that fledged a chick. Daily nest survival was calculated using the Mayfield method (Mayfield 1961), in which the number of days survived was divided by the total number of exposure days. Since nests were not checked on a daily basis, it was assumed that any change in status (hatching, fledging, failure) occurred midway since the last visit. This method may, by chance, over- or underestimate incubation and fledging periods, but it should not affect the mean values if the sample size is sufficiently large. The mean incubation and fledging periods therefore can be used for comparison with other locations, but the

range of values should not be used for comparison. All values reported are mean \pm SE unless otherwise noted.

In 2006 all chicks and some adults were banded with a metal band to allow monitoring of survival and recruitment in future years. In 2007 the decision was made not to band more adults or chicks for two reasons: (1) The nest sites are easily visible to the public from a busy roadway and several pullouts and observation points. If people saw researchers handling tropicbirds it would reveal the presence of the nests and possibly encourage others to handle the birds, which could jeopardize their survival. (2) Tropicbirds have tiny legs that are not visible unless the bird is picked up, so it would not be possible to determine the identity of a bird without handling it each year, which would increase the disturbance to the birds and the amount of time required for this work. However, two Red-billed Tropicbirds (*P. aethereus*) were banded in 2007. This species nests in the eastern Pacific and is a rare visitor to the Hawaiian Islands, usually in association with nesting Red-tailed Tropicbirds (VanderWerf and Young 2007). The Red-billeds were banded so they could be identified if they return to Hawaii in subsequent years, or if they are recaptured in their normal range in the eastern Pacific.

RESULTS

A total of 24 tropicbird nesting attempts were observed in 2007, of which three were in the same location as a nest

REPORT • Red-tailed Tropicbird in Oahu

that had failed, suggesting they may have been renests. At Kilauea Point, Kauai, most nests in the same locations were made by the same pair (B. Zaun, pers. comm.), suggesting the 24 nesting attempts likely were made by 21 pairs, though this cannot be known with certainty because the birds were not banded.

Eggs were laid from late January through early June, with a peak in March (Figure 1). Eggs hatched from mid-March to June, and chicks fledged from June to early September (Figure 1). Twenty of the 24 eggs hatched (83%), and 15 of the 20 chicks fledged (75%), for an overall nest success rate of 63% (15 of 24). The mean incubation period was 46.2 ± 1.0 days ($n = 18$), and the mean nestling period was 77.3 ± 2.0 days ($n = 15$). Two nests were found after the egg was laid, so the incubation period could not be measured for those nests.

Of the nests that failed, four failed during incubation and five failed after hatching. Three nests were depredated after hatching, probably by mongoose. Two nests failed during incubation due to interference from Red-billed Tropicbirds. In four nests the cause of failure was unknown. One of the depredated chicks was found dead near the nest with its skull chewed open and only the brain eaten. In the two other depredation cases tropicbird feathers were scattered around the nest area, one with a mongoose scat nearby.

A large adult mongoose was observed in one of the nesting areas on 17 May. Four live traps were deployed on 18 May and checked daily in an effort to catch this animal and prevent it from preying on tropicbirds or their eggs. A total of 4 mongooses and one rat of unknown species were caught from 18 May to 4 June.

DISCUSSION

The Red-tailed Tropicbird nesting colony in southeastern Oahu, although small, is fairly successful and appears to be increasing in size. The number of nest attempts in 2007 (24) was higher than

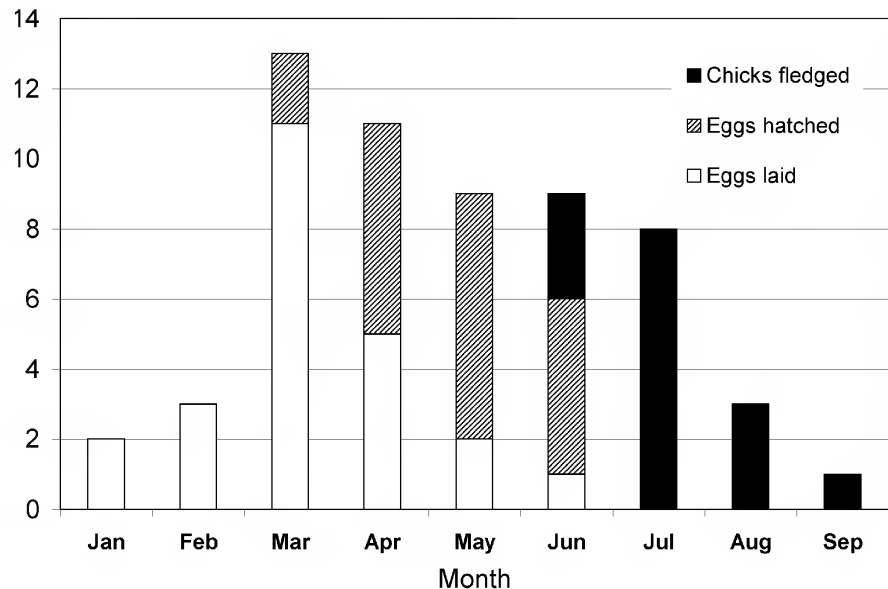


FIGURE 1. Nesting phenology of Red-tailed Tropicbirds in southeastern Oahu in 2007.

in 2006 (19). Nest success was slightly higher in 2007 (63%) than in 2006 (58%), and success in both years was higher than average nest success rates on Kure (28%) and Midway (40%) (Schreiber and Schreiber 1993). The nesting season started unusually early in 2007, with the first eggs laid in late January.

Mongoose were observed in the nesting colonies for the first time in 2007, but it seems likely that a few individuals are present in the area most of the time but have not been detected previously. At least three tropicbird nests were depredated in 2007, probably by mongoose, but the mongoose trapping effort in 2007 appeared to limit the damage. A rat was also trapped during efforts to catch mongoose, indicating rats are also present in the area, which was not surprising. Overall, the threat from predators does not appear serious, though it may be advisable to trap again at the start of the 2008 nesting season to remove any predators. Continued monitoring of nest success throughout the season would help to determine whether predation is occurring and if trapping needs to be implemented again later in the season to ensure that the colony remains secure.

Two Red-billed Tropicbirds were observed in the Red-tailed nesting

colonies in 2007 for the second year in a row (VanderWerf and Young in press). Both birds were banded so they could be identified. The Red-billed Tropicbirds interacted frequently with Red-tailed Tropicbirds and probably were attracted by their presence. The Red-billed Tropicbirds often attempted to participate in courtship displays with Red-tailed Tropicbirds, but they did not perform the characteristic wheeling flight display of the Red-taileds and gave strident, screeching calls that were very different from the clucking calls of the Red-taileds. Courting Red-taileds sometimes tolerated the presence of a Red-billed in their midst, but on several occasions pairs or groups of courting Red-taileds dispersed upon the arrival of a Red-billed. Each Red-billed Tropicbird frequently landed less than one meter from nesting Red-tailed Tropicbirds and vocalized. It was not clear if the Red-billeds were acting aggressively and attempting to take over the nest site, attempting to court with the Red-tailed, or just curious, but the Red-taileds usually responded defensively by raising their wings and erecting their feathers and by giving harsh screams that were different from the clucking calls used to greet mates. In 2007, two eggs were broken in the nests visited

REPORT • Red-tailed Tropicbird in Oahu

most often by Red-billeds, and each Red-billed sat in the nest cavity at different times after the nest failed. Tropicbirds are known to engage in serious fights during competition for nesting sites (del Hoyo *et al.* 1992, Schreiber & Schreiber 1993), and Diamond (1975) speculated that interference from White-tailed Tropicbirds may have been a cause of nest failure in Red-tailed Tropicbirds on Aldabra Atoll in the Indian Ocean. We did not observe any physical aggression between Red-billed and Red-tailed Tropicbirds, but at least two nest failures in 2007 were caused by Red-billed Tropicbirds, through intentional damage, incidental damage from jostling during altercations or rapid departure by incubating birds, or overheating of eggs caused by lack of attendance. This is a natural and very interesting phenomenon, and it would not be appropriate to remove or haze the Red-billed Tropicbirds from the area.

The steep terrain in this area, heavy traffic, and limited access probably has helped minimize human disturbance to the nesting colony. Similarly, there is little food for predators in the rocky terrain, and the heavy traffic may help

discourage predators from attempting to enter the area. The best method of protecting this colony is to keep its location as little known as possible. The presence of researchers at the nests could attract curious human visitors as well as predators. Birders and naturalists interested in viewing or photographing the birds can do so safely from the Lanai lookout or Halona blowhole parking areas. Courting tropicbirds frequently fly along the shoreline and are easily seen from these lookouts during March-July. Courtship activity seems to peak during the middle of the day, from 10am to 2pm. Shoreline areas below the nesting cliffs are frequented by fisherman during the day, especially on weekends. Visitation to the actual nest sites should be kept to a minimum and at times when few other people are in the area.

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MEETING NEWS

PSG's first Special International Meeting was held in Lukang, Taiwan, Republic of China, in October 2007. The Chinese Crested Tern Working Group was formed at the request of Asian colleagues to help with conservation of this highly endangered bird.

PSG GOES TO TAIWAN

Verena Gill, Rob Butler, Mark Rauzon, and Ron Ydenberg

As the Pacific Seabird Group contingent drove into Lukang, Taiwan, 1000 banners announcing our first meeting in Asia fluttered in the wind all across this historic town. It was an amazing welcome to a meeting hallmarked by outstanding hospitality. PSG opened an exciting new chapter in its conference history with a Special International Meeting held at the Leader Landmark Hotel, 4-7 October 2007. In combination with the planned Annual Conference in Japan in 2009 and the World Seabird Conference in Vancouver in 2010, these are strides toward PSG becoming a truly pan-Pacific organization.

The Taiwanese conference was a highly memorable event for all that attended. It was facilitated by superb local organization from Mr. Simon Liao and Dr. Wei-Lung Wang, and by the enthusiastic participation of many Taiwanese students. The meeting ran in parallel with the Conference of Taiwan Eco-Environmental Conservation, sponsored by the Taiwanese Council of

Agriculture, Executive Yuan, Ministry of Foreign Affairs, the National Youth Commission, and the Taiwan Sustainable Energy Society. The Taiwanese National Science Council supervised the meeting, with organization provided by National Chung-Hua University of Education and the Taiwan International Birding Association. In addition, the Taipei Economic and Cultural Office in Vancouver, Canada, provided invaluable assistance in making this meeting a reality. The PSG gives a big "thank you" to all these agencies for their help.

The opening ceremony was attended by several Taiwanese Legislators and high-ranking government officials, and was widely reported in the Taiwanese media. In fact, the conference was widely covered in the media each day. During the ceremony we were treated to an environmentally themed fashion show by some of the students, who showcased such issues as climate change, pollution, and marine debris.



Nightly entertainment for attendees (note PSG/Chinese Crested Tern banner)

Tony Gaston, Scientific Chair of the meeting, presented the first plenary address with about 300 students and faculty from Taiwan in attendance. The conference featured invited speakers on three main themes, including "Seabirds as Marine Animals," "Human impacts on seabird populations," and "Seabird status and distribution in the Pacific and adjacent seas." Papers from these talks will be published in an upcoming issue of *Marine Ornithology*.

Each evening was topped off with a banquet of unforgettable Taiwanese cuisine and entertainment. We were treated to students giving us a modern dance performance, a rock concert, and music from a traditional Chinese orchestra. During the meeting, Super Typhoon Krosa roared across Taiwan. The storm triggered landslides, disrupted power, flooded homes, wiped out mountain roads, and sadly took 9 lives. All the while, conference attendees were hunkered down in the hotel and went unharmed. Not to be deterred by a little wind at the onset of the storm, many

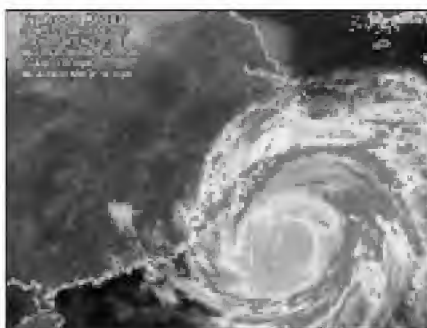


Attendees at the Pacific Seabird Group's international conference in Taiwan

MEETING NEWS • Taiwan Special Conference

of the attendees went out on a morning shorebird field trip to a nearby wetland. Mark Rauzon, Rob Butler, Ron Ydenberg and Julia Parrish saw the first White Tern (*Gygis alba*) recorded for Taiwan as it streaked by in the typhoon. The typhoon saw to it that that the large retinue of Taiwanese students was forced to take shelter in the hotel for the night of the banquet, which provided an evening that will not soon be forgotten by anyone there. HOTALA!

Most significant in terms of PSG's conservation mission was the immediate and charged response of PSG members to the recently rediscovered and imperiled Chinese Crested Tern (*Thalasseusa bernsteini*). In fact the conference's logo was the critically endangered tern. The reappearance of these birds after almost 70 years is as significant as that of the Ivory-billed Woodpecker. A PSG team met with Taiwanese biologists, who requested a cooperative conservation effort for the imperiled tern. As former Past Chair Lisa Ballance put it, "If PSG doesn't embrace this as a cause, what



Typhoon Krosa; note Taiwan in bull's eye



Ron Ydenberg and Rob Butler enjoy the typhoon

do we stand for?" The efforts of Mark Rauzon and Verena Gill saw to it that we will continue to work on behalf of this species (see meeting notes below).

Following the meeting, a five-day field trip to the mountains revealed the rich biodiversity contained in Taiwan's huge parks and protected areas (about 20% of the country). We added a new member to the team after the second day: Krosa the abandoned puppy, who now resides in Alaska. About 100 life birds were recorded, not to mention a highly poisonous snake (the turtle-designed pit-viper, *Trimeresurus mucrosquamatus*)

that Beth Flint and Verena found inside one of the hotels.

A few people spent the weekend after the field trip in Taipei to continue the message of bird conservation. There were more receptions and unbelievable hospitality with government and birding group officials. Verena, Mark Rauzon, and Rob Butler represented PSG at a ribbon-cutting ceremony and lunch to launch a show of bird photographs and a book by K.K. Kuo, Chair of Olympus Cameras in Taiwan.

For more information on Taiwan and its birds, go to www.birdingintaiwan.org



Mazu Temple (Xin-zu-gong), Lukang, Taiwan



Mountains of Taiwan

NOTES FROM THE CHINESE CRESTED TERN WORKING GROUP MEETING IN TAIWAN



On 9 October 2007, an international PSG working group on the Chinese Crested Tern (CCTE) was formed, in response to a request from our Taiwanese colleagues. They wanted PSG to consider how the organization could help save the critically endangered CCTE. The Taiwanese were represented by Shou-hwa Chang, the Taiwanese scientist who rediscovered the CCTE and now surveys them annually on the Matsu Islands; Dustin Wang, a Taiwan International Birding Association member who helps with CCTE issues; and the conference host, Simon Liao, who works for the Taiwanese government promoting ecotourism and birding. PSG was represented by the current Chair, Verena Gill; the Past Chair, Katie O'Reilly; Rob Butler, Canadian Wildlife Service and Co-Chair of the Taiwan organizing committee; Ron Ydenberg, Co-Chair of the Taiwan organizing committee; and Lisa Ballance, Mark Rauzon, Julia Parrish, all former Past Chairs.

CCTE were once thought extinct, since none had been seen since 1937. However, in 2000 the first nest was found by Shou-hwa Chang in the Matsu Archipelago of Taiwan. The archipelago consists of eight small, rocky islands; they lie 900 m from the Chinese mainland, and although they are Taiwanese territory, they are over 50 km from Taiwan. Old colony photos revealed that CCTE were nesting there among 3000 Great Crested Terns (*Sterna bergii*; GCTE) in the past.

However, in 2007 there were only 5 CCTE nests, with fewer than 15 individuals in the Matsu population. It is possible there are other unknown breeding sites, but there has been no real research on the birds—just photo monitoring from boats offshore, to minimize disturbance to the colony. It is estimated there could be as few as 50 individuals left in the entire population.

Poor Chinese fishermen from the nearby mainland (Fu-jien Province) use the waters around the Matsu islands. The fishermen sometimes take GCTE eggs and perhaps CCTE eggs for food. At present this appears to be the greatest immediate threat to the CCTE. The Taiwanese Coast Guard patrols the waters, and for the last 3 years the Guard has seized the fishermen's nets if they are caught egging. This appears to be a major deterrent to these fishermen, because since the seizing of nets began there has been no recorded egg loss. Posting a warden on island would be an optimal measure; however, this would be a political issue, since in spite of being Taiwanese territory, the islands are so close to mainland China.

Some ideas that were discussed in Taiwan include (in no particular order): recovery of feathers for heavy metal analysis, island assessment of predators, taping calls for playback, mirror/decoy to attract other CCTE to the islands, safe haven breeding sites so remote cameras can monitor behavior, satellite tags, and captive breeding. The Taiwanese also requested that PSG write a letter to the Secretary of the Party Committee of Fu-jien Province, People's Republic of China, to bring the matter of egging to their attention (this has been done). A Recovery Plan drafted by BirdLife Asia is currently being reviewed by PSG members, and from that we hope to evaluate how best to aid our Taiwanese colleagues on the ground. Upon our return to North America, we expanded the group to include Chinese seabird biolo-

gists and tern experts, in preparation for a brainstorming session at PSG's 2008 meeting at Semiahmoo, Washington.

We were presented in Taiwan with a just-released commercial DVD of the Matsu tern colony. The video, which was funded by BirdLife Asia, highlights the plight of the CCTE. The footage includes several other terns—Great Crested, Roseate (*Sterna dougallii*), Black-naped (*Sterna sumatrana*), and Bridled (*Sterna anaethetus*) Terns—and Black-tailed Gulls (*Larus crassirostris*). In one segment of this DVD, an island visitor holds up a bird skeleton that shows signs of having been eaten by rats. This circumstantial evidence suggests rats are present and may be a predator of the nesting terns, including the CCTE. We are currently looking for funding to collaborate with the Taiwanese on a predator assessment study.

We feel strongly that the Pacific Seabird Group should pursue this issue closely. We do not want to watch this species perish like the blind Chinese river dolphin (*Lipotes vexillifer*) and poo'uli (*Melamprosops phaeosoma*). The CCTE is part of this unique time for PSG, as Asia looms large in our future, with this past meeting and the 2009 PSG meeting in Japan. Anyone wishing to help with this project should contact Verena Gill (verena_gill@hotmail.com) or Mark Rauzon (Mjrauz@aol.com).



Chinese Crested Tern photos courtesy of Simon Liao.

OBITUARY

IN MEMORIAM: KARL WALTON KENYON, 1918-2007

Mark J. Rauzon



Karl Walton Kenyon, one of the first marine ecologists to research both seabirds and marine mammals, died on March 27, 2007 at age 89.

Kenyon was born in 1918 in La Jolla, California. As a youth he roamed San Diego County, where he spent much of his spare time skiff-fishing with his friend Townsend Cromwell, who went on to become a famous oceanographer (Cromwell Current is the deep underwater current that bathes the equatorial islands of the western Pacific.) Karl and another friend collected bird eggs, and once when Karl had climbed a tall eucalyptus tree to collect Great Blue Heron eggs, the landowner caught him and called him down. That landowner was Bing Crosby, who was later to cross his path again.

Kenyon attended Pomona College from 1936 to 1940. He gained a master's degree from Cornell University in 1944, studying Baltimore Oriole (*Icterus galbula*) nest site selection. He was drafted in World War II and served as a naval aviator aboard the USS *Sangamon* in the Pacific theater, strafing and bombing to support landings in the Marshall and Gilbert Islands, New Guinea, Saipan, Rota, Guam, and the Philippines. He flew 97 sorties in all, and was shot down and rescued at sea at Leyte Island in the Philippines. After the war he was

discharged with honors as a Lieutenant Commander.

After the war, Kenyon bought a twenty-five foot sloop and spent two months exploring the coast of Baja California, a feat not casually repeated even today. He published some new and important data on bird distribution, and his impeccable field notes are invaluable today.

Kenyon taught biology at Mills College for two years. He then joined the Bureau of Sport Fisheries and Wildlife in 1947, where he worked under Victor Scheffer (who is now 100 years old). From 1947 to 1954, Karl spent part of each year on the Pribilof Islands studying northern fur seals (*Callorhinus ursinus*), and for six months in 1952 he participated in studies of international pelagic sealing off Japan. In 1955 he was based in Seattle and began a 10-year investigation of sea otters (*Enhydra lutris kenyoni*) in the Aleutian Islands. Much of this work was based on extensive research at Amchitka before underground nuclear testing began in 1965. His work resulted in the monograph *The Sea Otter in the Eastern Pacific Ocean* (1969), part of the North American Fauna series published by the U. S. Department of the Interior. Kenyon was largely responsible for the reintroduction of northern sea otters on the Washington coast, where they thrive today.

His other assignments also included work on Pacific walrus (*Odobenus rosmarus*) on Little Diomed and Round Islands in the Bering Sea, with three extensive aerial surveys over the ice to determine walrus distribution and population size. He also coordinated the first aerial census of the Steller's sea lion (*Eumetopias jubatus*). Kenyon's aerial surveys put him at risk, and in 1961 he survived a crash off Adak that killed several others. In all, he was involved in three airplane accidents.

After Bing Crosby visited Midway Island on a USO show, he mentioned on his radio program that the Navy was killing albatrosses (*Phoebastria* spp.) to prevent air crashes. Kenyon was dispatched to address the problem of birds flying into aircraft. The island's commanding officer thought that Karl's presence was a tacit go-ahead to remove the nuisance birds. To prove a point, Karl allowed a kill on a triangle where the runways met. As birds were killed, others kept coming in to replace them. The dead birds were dumped at sea, but they floated ashore and had to be picked up from the beach. Kenyon and Dale Rice then recommended that the revetments and dunes bordering the runway be moved 300 feet away, so that birds soaring on updrafts above these objects would be out of harm's way. The albatrosses would then lose altitude over the dunes instead of the runway. The work cost millions of dollars, but it saved thousands of albatrosses and may have saved some pilots' lives.

Other examples of Kenyon's pioneering efforts include one of the first beached-bird surveys in San Diego county (Kenyon 1943). He was also one of the first to observe plastic ingestion by seabirds (Kenyon and Kridler 1959). One of his well-regarded studies concerns the homing ability of the Laysan Albatross (*P. immutabilis*; Kenyon and Rice 1958). Their research described an experiment in which incubating albatrosses were flown to various Pacific Rim air stations and then released. The short time that it took for the birds to return to their nests on Midway was an oft-repeated fact in popular literature.

With Dale Rice, Kenyon co-authored seminal works on the breeding, distribution and life history of the North American albatrosses (Rice and Kenyon

OBITUARY • Karl Kenyon

1961) and Hawaiian Monk Seals (Kenyon and Rice 1959). In his paper "Man versus the monk seal," (Kenyon 1972), he alerted the world to the plight of this species. In 1978 he pronounced the Caribbean monk seal extinct, based on extensive aerial surveys and interviews with fishermen.

Kenyon retired in 1973, a year after the Marine Mammal Protection Act went into effect, citing "too much paperwork needed yesterday." He pursued conservation work and stopped the bombing of Seal Rocks in Washington State, a target he himself had strafed during his "top gun" years. Kenyon was also an accomplished wildlife photographer, watercolorist and oil painter. Over the years he also authored numerous articles for popular magazines (e.g., "Last of the Tlingit Sealers"; Kenyon 1955).

Kenyon's contributions have been acknowledged in many ways. Bogoslov Island, an emerging volcanic cone in the Aleutians contains a prominence that was named Kenyon's Dome by G. Vernon Byrd

of the U. S. Fish and Wildlife Service. A subspecies of the northern sea otter, *Enhydra lutris kenyoni*, was named for him by Don Wilson in 1991. A cormorant species was named after him in the same year by Douglas Siegel because of a complete skeleton that Kenyon collected in 1959. The skeleton was initially thought to belong to a Pelagic Cormorant. However, morphometric studies showed it to be smaller than all other cormorants; it thus may be a new species, Kenyon's Shag (*Stictocarbo kenyoni*), or else a small subspecies of Pelagic Cormorant endemic to the Central Aleutians. Kenyon also received the Pacific Seabird Group's inaugural Lifetime Achievement Award in 1993.

Kenyon is survived by his companion of 39 years, Clarence Larson, his brother, Mel Kenyon, and two nieces and two nephews.

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Photos of Karl Kenyon on French Frigate Shoals in 1977 by Mark J. Rauzon.



CONSERVATION REPORT

Compiled by Craig Harrison and the editor

PSG AWARDS FIRST CONSERVATION SMALL GRANTS

PSG awarded its first two Conservation Small Grants in late 2007, in the amount of about \$2,000 per project. One project is intended to eradicate Pacific rats (*Rattus exulans*) from Mabualau Island, Fiji, and will be lead by Amit Sukal of Birdlife International in Suva, Fiji. This project will protect Red-footed Boobies (*Sula sula*), Black Noddies (*Anous minutus*) and Lesser Frigatebirds (*Fregata ariel*). The second project will identify interactions between seabirds and artisanal fishing in the Chilean Patagonian fjords and channels. The principal investigator is Cristian G. Suazo, Universidad de Los Lagos, Chile, and the project is intended to protect Black-browed Albatrosses (*Thalassarche melanophrys*), Magellanic Penguins (*Spheniscus magellanicus*) and Southern Fulmars (*Fulmarus glacialisoides*).

UPDATE ON SHORT-TAILED ALBATROSS POPULATIONS

Hiroshi Hasegawa has reported the results from his 97th trip to Torishima Island to monitor Short-tailed Albatrosses (*Phoebastria albatrus*) during autumn 2007. Hiroshi is pleased with the success at improving the breeding output through management of the nesting habitat. Another great success is the creation of a new colony at the erosion-free “safe” site on Torishima through the use of decoys and tape recordings. He anticipates 240-250 chicks will fledge during spring 2008 if there are no natural disasters, and that the total population size will be about 2100

birds in the post-breeding season. The breeding population has been increasing at an average 7.5% per year since 1979, when Hasegawa began counting the number of breeding pairs. He reports that breeding success is even better at the new colony, which is growing very rapidly through the immigration of pre-breeders from the more crowded original colony. Because of this, Hasegawa thinks the Torishima population is now growing faster than previously, perhaps at a rate of 8% per year. Hasegawa will start work on creating a third colony on the Ogasawara (Bonin) Islands in February 2008, through the translocation of chicks. If this project succeeds, it would reduce the risk of damage to the population by an unpredictable volcanic explosion of Torishima.

There is also some very encouraging news from Midway, Northwestern Hawaiian Islands. Three Short-tailed Albatross are present, two sub-adults and one adult, one of which had previously been attracted to a decoy. A subadult and adult are dancing together, suggesting a bond may form that could lead to fertile eggs in the near future. (In the past, single Short-tailed Albatrosses have turned up on two islands at Midway Atoll, but they only seemed interested in trying to bond with other albatross species.)

CONSERVATION OF THE CHINESE CRESTED TERN

As a follow-up to PSG’s meeting in Taiwan in October 2007, PSG has written officials in the People’s Republic of China concerning the Chinese Crested Tern (*Thalasseusa bernsteini*). The species was rediscovered in the year 2000 off Fuzhou on the east coast of mainland China. Worldwide numbers of this

species probably are no more than 50. Verena Gill and Mark Rauzon drafted most of the letter. PSG noted that the need for conservation action is urgent, and informed the Chinese officials that PSG had organized an international team of experts to outline a plan of action for conserving this species. PSG invited officials from the Chinese government to attend PSG’s meeting in February 2008 in Blaine, Washington, where the experts will discuss ways and means to help the species survive. PSG has proposed to coordinate an international effort to eradicate rodents from the nesting island where the terns are known to breed.

PSG commended China for setting aside marine protected areas such as the Jiushan Islands in Zhejiang, Huanghe Sanjiaozhou Nature Reserve, and the Min Jiang river estuary, Fujian province, where the terns may feed. PSG also noted that one of the most serious threats to the birds is eggging by fishermen, and requested help in asking fishermen to refrain from taking eggs and disturbing the terns during the breeding season.

GALAPAGOS ISLANDS DECLARED IN DANGER BY UNITED NATIONS

UNESCO declared in June 2007 that the Galápagos Islands, which are a World Heritage Site, are in danger from booming immigration and tourism. This followed an announcement in April by the Government of Ecuador that the Galápagos are at risk and are a national priority for conservation. The most obvious threat of visitors is disturbance of wildlife and habitats, but this may not be the most serious problem. The islands’ popularity for ecotourism is driving a local economic boom (the islands have

CONSERVATION REPORT

eight small towns and a permanent population of about 19,000). Visitors and supply vessels increase the risk of introducing exotic pests. More than 1000 non-native species are now known there, mostly plants and insects (although some species, such as goats and rats, date from the 19th century).

The good news is that conservation efforts are already well-developed under the Galápagos National Park Service, with support from the Charles Darwin Foundation (CDF). Visitors to uninhabited islands are strictly controlled and must be accompanied by a Park Service guide. Research and conservation measures are carried out by the CDF, which was established in 1959 under the auspices of UNESCO, and which works closely with the government and international cooperators. But the problems are immense, in part because the archipelago is so remote—it extends 350 km from north to south and 150 km east to west; most islands are uninhabited, and most are accessible only by sea. Potential problems are exemplified by the discovery in January 2008 that 50 Galapagos sea lions (*Zalophus wollebaeki*) had been clubbed to death on seldom-visited La Pinta Island.

MARBLED MURRELET STILL PROTECTED BY ESA

A federal judge ruled in February 2008 against the U.S. timber industry's effort to end protection of the Marbled Murrelet (*Brachyramphus marmoratus*) under the Endangered Species Act (ESA).

The American Forest Resources Council (AFRC) filed a lawsuit in early 2007 to force delisting of the murrelet by the U.S. Fish and Wildlife Service (USFWS). The lawsuit argued that USFWS must delist the murrelet, because the agency's status review of the species in 2004 had concluded that the population in California, Oregon, and Washington

was continuous with a healthier population in British Columbia and Alaska. Judge John Bates of the U.S. District Court for the District of Columbia ruled that the industry could not sue USFWS over a status review. He said the agency had only made a recommendation, not made a decision or taken an action.

The judge's ruling was not concerned with the status of the population. USFWS could conduct another status review over the species' entire range. A 2007 review by a different federal agency, U.S. Geological Survey, concluded that the population of Marbled Murrelets is declining in many areas from Alaska to California.

More developments are almost certain in the future. USFWS might decide later to change (or to continue) the murrelet's protection under the ESA. Any such action could be subject to litigation (unlike a status review). The issue of protected habitats is also pending now, regardless of the murrelet's ESA status. Both BLM and USFWS have proposed to reduce habitats of Marbled Murrelets (see *Pacific Seabirds* 34(1):18-19). Finally, AFRC may keep up its pressure on the agency; the group could appeal the judge's recent decision, or they could change tactics and file a petition with USFWS to delist the Marbled Murrelet.

NEW RODENT REGULATIONS IN ALASKA

Introduced predators have devastated some populations of wildlife throughout world. Among the most damaging are rats (*Rattus* spp.), which can decimate populations of ground-nesting birds, especially seabirds. Alaska's remoteness has not spared the state's rich wildlife from this threat. Rats first arrived in Alaska in 1780 when a Japanese sailing vessel went aground in the Aleutian Islands. Today both Norway rats (*R. norvegicus*) and black rats (*R. rattus*) are found in isolated locations,

including large towns in southeastern Alaska, the city of Kodiak, on many of the Aleutian Islands, and as far north as Fairbanks and Nome.

To combat the risk of rats, the Alaska Department of Fish and Game recently adopted new regulations to halt their spread and prevent introductions into new areas. Also, the department recently released a management plan entitled "Wildlife and People at Risk: Plan to Keep Rats Out of Alaska" (<http://www.adfg.state.ak.us/special/invasive/invasive.php>). The plan promotes protection of Alaska's wildlife from nonnative rodents, especially rats. It is part of a multi-agency effort to minimize impacts of invasive species in Alaska. The document summarizes existing information, then recommends a collaborative structure for combating rats, including the formation of an "Alaska Rodent Action Team." It identifies dozens of strategic actions to prevent and eradicate invasive rodents, in six categories: legal and policy changes, emergency "rat-spill" responses (preventing the escape of rats, e.g. from shipwrecks), health and safety, community rodent prevention and control, and wildlife and habitat restoration. Additionally, the plan provides a practical guide to efforts by industry and local communities.

The new state regulations aim to increase awareness of the dangers posed to Alaska by rats, as well as to eradicate them from the state. The Alaska Board of Game approved these regulations to become effective in September 2007. They require boaters, shippers, and others who are moving containers that could contain rats to check vigilantly for hitchhiking rodents, and to control or eradicate them if found. Enforcement will focus largely on prevention of "rat spills," assistance to shippers and others, and voluntary compliance. These regulations now make it illegal for a boat or other means of conveyance to enter Alaskan waters or remain in Alaskan waters if it is infested with rats. They also require everyone in the state to store food and garbage in a manner that does not attract rodents. In

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addition, harbors, ports, food processors, and other facilities that contain rats are required to control or eradicate them.

—Joe Meehan

PSG SUPPORTS RAT ERADICATION IN ALEUTIANS

In January, PSG strongly supported the proposal of the USFWS to eliminate Norway rats (*Rattus norvegicus*) from Rat Island, Aleutian Islands, Alaska. Brad Keitt of Island Conservation assisted in drafting this letter. PSG noted that seabird islands throughout the world have been threatened by introduced predators, and rats are one of the most pernicious pests that can occupy a seabird colony. In the worst circumstances, a colony can be entirely destroyed. In other situations a colony may survive but is crippled, suffering huge losses each year of eggs, chicks and even adult birds. Today Rat Island, whose area is almost 2800 ha, has few seabirds. PSG suggested that seabirds may quickly recolonize the island once rats are removed.

PSG stated that a fundamental mission of the National Wildlife Refuge System is to restore islands such as Rat Island to their natural state, and to allow wildlife such as seabirds to flourish. PSG noted that for decades, the Alaska Maritime National Wildlife Refuge has been a national and world leader in restoring island ecosystems to benefit seabirds. Thus PSG has confidence that the refuge staff will implement the proposed eradication program capably and professionally. The rodenticide that is proposed for use has successfully been used to eliminate alien rodents for twenty years. The technique of scattering poisoned bait from a helicopter was developed by New Zealand conservationists, and it was successfully employed to eradicate rats on Anacapa Island in 2002, another project that PSG supported. PSG noted that non-aerial bait distribution could disturb sensitive

terrestrial habitats, because of the need to service bait stations on foot.

ELIMINATION OF RATS IN FIJI

PSG's support of rat eradication on Mabualau Island, Fiji (see first item in this report), complements efforts on other Fijian islands that are funded by the David & Lucile Packard Foundation. BirdLife International's Fiji program has begun work to remove rats and cats from the Ringgold Isles, a remote archipelago to the north of Fiji's two main islands. The Ringgold Islands are mostly uninhabited, and their relative isolation should make them a safe haven for such seabirds as Black Noddies and Red-footed Boobies. Unfortunately, Pacific rats (*Rattus exulans*) have become established on many islands and are contributing to a progressive decline in seabird breeding populations through predation on eggs and chicks. The rats also hinder regeneration of coastal forest—which is essential to tree-nesting species like the boobies and noddies—by eating the seeds of native trees.

BirdLife completed the first phase of the project in summer 2007 when it surveyed the islands to establish seabird numbers and the presence of invasive predators. These baseline data will enable pre- and post-eradication monitoring. It confirmed that the Ringgold Isles are among Fiji's most important for seabirds, and some may meet criteria for internationally important bird areas (IBAs). There are thousands of Black Noddies and Brown Noddies (*Anous stolidus*), hundreds of Red-footed Boobies and Brown Boobies (*Sula leucogaster*), and some Lesser Frigatebirds. Also present were Masked Boobies (*Sula dactylatra*), Black-naped Terns (*Sterna sumatrana*), and White Terns (*Gygis alba*).

Rats were found on seven of the eight islands, six of which had medium to high densities. BirdLife's Steve Cranwell said that in many places the forest floor

was crawling at night with rats, and that as traps were being set, newly-set ones were snapping shut. Lower rat numbers on the seventh island were attributed to the presence of a feral domestic cat.

Local communities and landowners have pledged support for rat eradication. Planning is underway to establish how eradication will be carried out, and what restrictions on access, crab harvesting and other activities may need to be imposed until it is complete. The operational plan is expected to be finalized in early 2008; eradication will occur between May and August 2008. Once rats have been eliminated, BirdLife will focus on biosecurity to prevent rats and other invasive species from returning. This will involve the local communities and landowners, whose support is essential.

In February 2008, BirdLife International and the Nagilogilo Clan of Vatuira announced the successful eradication of Pacific rats. Vatuira is a small island 15 km from Viti Levu, Fiji's largest island, and has a major seabird colony. Ground-nesting species such as Bridled Tern (*Sterna anaethetus*) and Black-naped Tern have been observed raising chicks on Vatuira for the first time since eradication was completed.

PROTECTION OF SEABIRDS AT KAENA POINT, HAWAII

In January, PSG wrote the Hawaii Department of Land and Natural Resources to support a proposal to erect a predator-proof fence at Kaena Point, Oahu, to eliminate the harm that dogs, cats, mongoose and rats cause to seabird colonies at the Kaena Point Natural Area Reserve. At least 100 seabirds are killed at this reserve each year, and this interference is a major obstacle to maintaining healthy wedge-tailed shearwater (*Puffinus pacificus*) and Laysan albatross (*Phoebastria immutabilis*) colonies. PSG

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noted that if predators are removed and native vegetation restored, colonies of red-footed boobies or great frigatebirds (*Fregata minor*) might become established.

PSG OPPOSES BLM'S PROPOSED REVISIONS TO WESTERN OREGON PLAN

Thanks to Bill Ritchie and Kim Nelson, PSG wrote to the Bureau of Land Management (BLM) in January to express its concern about BLM's Western Oregon Plan Revision with respect to the Marbled Murrelet. The plan proposed the elimination of designated late-successional reserves established under the Northwest Forest Plan and would allow increased logging in older-aged forests. PSG stated that late-successional reserves and all remaining older-aged forests are critical to the survival and recovery of murrelets. PSG opposed the proposed changes and suggested that BLM maintain all of the existing late-successional reserves, older-aged forests, riparian reserves, and other habitats that are critical to the survival and recovery of this threatened species.

PSG emphasized that the murrelet was listed in 1992 primarily because of significant losses of nesting habitat through logging and development in coastal forests of Washington, Oregon and California, and that the recovery plan sought to stabilize the population at or near current levels by maintaining or increasing productivity and removing or minimizing threats to survival. Without late-successional reserves and other protected forests, the terrestrial habitat will not be protected and the demise of the murrelet population in Oregon will likely be accelerated.

PSG noted that (1) murrelet populations will likely continue to decline through low fecundity and high predation rates; (2) even with the current system of reserves and critical habitat units on

federal land, loss of occupied and suitable murrelet habitat is continuing; and (3) murrelet habitat declines will accelerate in the future with proposed changes to the late-successional reserves and the Northwest Forest Plan. Continued habitat loss and the continued fragmentation of habitat will increase the risk of extinction of this unique seabird. For these reasons, PSG opposes allowing additional older-aged forests to be logged because it could lead to the extinction of Marbled Murrelets in Oregon in the foreseeable future.

FIREWORKS DISPLAYS AND CORMORANTS

In December, PSG wrote the California Coastal Commission to express its concerns about the effect of fireworks displays on nesting seabirds in the vicinity of Gualala Point Island in northern Sonoma County. Ron LeValley provided the background information for PSG's letter. A Fourth of July fireworks display disturbed nesting Brandt's Cormorants (*Phalacrocorax penicillatus*) and Pelagic Cormorants (*P. pelagicus*) in 2006. Several concerned citizens sought the advice of biologists with BLM and USFWS. The agencies established a protocol to monitor the seabirds during the 2007 breeding season, with particular interest in gauging the effect of the fireworks display on the cormorants. This effort documented with photography that 11% of the Brandt's Cormorant nests were abandoned at the time of the fireworks event. The cormorants reacted quickly and many left the island during the event.

This cormorant colony has been declining for decades for a variety of reasons. PSG stated that an avoidable disturbance that causes as much as 10% of a population to fail in its breeding attempts is unwarranted. The Gualala Point Rocks are part of the California Coastal National Monument, which was established by

presidential proclamation primarily to provide habitat for seabirds and marine mammals. PSG encouraged the California Coastal Commission, BLM, USFWS, and the California Department of Fish and Game to take the necessary steps to avoid future disturbances.

KOREAN OIL SPILL THREATENS SEABIRDS

South Korea suffered the worst oil spill in its history on 7 December 2007, when the supertanker *Hebei Spirit* was struck by a barge that had come loose from its tug during rough weather. The 260,000 barrels of crude oil threatened two areas that are crucial for thousands of wintering and migrating birds. Tens of thousands of volunteers and soldiers worked for 10 days to clean up thousands of tons of crude oil, some of which threatened to enter Cheonsu Bay, about 95 miles southwest of Seoul.

The broken slick extended about 130 km south from the spill center, with oil washing up on beaches and tidal-flats as far south as the Geum Estuary. The Geum Estuary-Seocheon coastline provides habitat for Eurasian Oystercatchers (*Haematopus ostralegus*), Shelducks (*Tadorna tadorna*), and Saunders's gulls (*Larus saundersi*). These areas are very important for wintering and migrating birds in the Yellow Sea. In addition, Dunlin (*Calidris alpina*) on the Taean Peninsula showed signs of oil contamination.

ARE YELLOW-BILLED LOONS ENDANGERED?

The Center for Biological Diversity, Pacific Environment, and the Natural Resources Defense Council sued the U.S. Fish and Wildlife Service in mid-December 2007 to block oil development and to secure Endangered Species

CONSERVATION REPORT

Act protections for Yellow-billed Loons (*Gavia adamsii*). The groups claim that Yellow-billed Loons are threatened by industrialization in the 9.3-million ha National Petroleum Reserve, which covers much of Alaska's western North Slope. They are also concerned that the species is under stress from warming in the Arctic, and that oil development will add to its problems.

Yellow-billed Loons breed in tundra wetlands in Alaska, Canada and Russia, and winter along the western coasts of Canada and the United States. USFWS estimates there are 16,500 Yellow-billed Loons in the world, of which 3700 to 4900 breed in Alaska. More than 75% of the Alaska breeders nest in the petroleum reserve. The breeding habitat in Alaska includes the Teshekpuk Lake area, which has been off-limits to oil development but is now under consideration for oil and gas leasing. Yellow-billed Loons also breed along the Colville River, including areas already opened to oil and gas development.

In May 2007, USFWS said Yellow-billed Loons warranted study for Endangered Species Act listing. That determination required the agency to solicit public comment, carry out a status review of the loons and, if merited, issue a proposed rule to protect loons. FWS was acting on an April 5, 2004 petition filed by the Center for Biological Diversity and the Natural Resources Defense Council. The environmental groups believe that FWS is moving too slowly because it did not address these issues within a year of the original petition. They are seeking an order from a federal judge setting a firm deadline for decision. USFWS expects to have funds in its cur-

rent budget to complete the status review and the 12-month finding.

USFWS PROPOSES TO LIST 6 SEABIRDS UNDER ESA

In December, USFWS proposed to list as endangered three seabirds that rarely occur in U.S. waters: Chatham Petrel (*Pterodroma axillaris*), Fiji Petrel (*Pterodroma macgillivrayi*) and Magenta Petrel (*Pterodroma magentae*). In addition, USFWS has proposed listing three seabirds as threatened: Cook's Petrel (*Pterodroma cookii*), Galapagos Petrel (*Pterodroma phaeopygia*), and Heinroth's Shearwater (*Puffinus heinrothi*). USFWS is seeking data and comments from the public on this proposal by March 17, 2008.

PRELIMINARY BIRD IMPACTS FROM COSCO BUSAN SPILL IN SAN FRANCISCO BAY

The California Department of Fish and Game has released preliminary totals for oiled birds that were collected after the container vessel *Cosco Busan* hit the San Francisco Bay Bridge on 7 November 2007. More than 50 species of birds were affected. Of 2940 birds collected, 1084 were alive when found, and 421 of these were cleaned and released.

Oiled birds were collected in the bay and along the outer coast. The species most affected were Surf Scoter

(*Melanitta perspicillata*; 766 collected), Western/Clark's Grebe (*Aechmophorus* spp.; 434), Eared/Horned Grebe (*Podiceps* spp.; 288), Common Murre (*Uria aalge*; 288), cormorants (*Phalacrocorax* spp.; 248), and scaups (*Aythya marila* and *A. affinis*; 466). Species collected in lesser numbers included herons (Ardeidae), loons (Gaviidae), gulls (*Larus* spp.), Northern Fulmars (*Fulmarus glacialis*), and protected species such as Brown Pelicans (*Pelecanus occidentalis*), Marbled Murrelets, and Snowy Plovers (*Charadrius alexandrinus*). Total mortality, including dead birds that did not come ashore or were missed by cleanup crews, is being estimated through further analysis.

More information is available at <http://www.dfg.ca.gov/ospr/spill/>

ALASKAN MURRES RESCUED FROM WORLD WAR II

Barwell Island in Resurrection Bay, Alaska, is too remote and steep for normal visitors. But adventurous boaters who leapt onto the island's cliffs last year discovered a World War II gun emplacement that was trapping murres. A door in the roof of the structure had been left open, and murres that fell in could not escape. Staff of the Alaska Maritime National Wildlife Refuge closed the gap. They also found a stash of acid batteries from the war, which are being removed by the U.S. Army Corps of Engineers. One more legacy of war has finally been laid to rest . . .

PSG NEWS

PSG EXECUTIVE COMMITTEE ELECTIONS FOR 2008

The following Executive Council members were elected for 2008:

Officers

- **Chair-elect:** Greg Balogh
- **Treasurer:** Ron LeValley

Regional Representatives

- **Alaska:** Heather Renner
- **Hawaii/Pacific Rim:** Linda Elliott
- **Northern California:** Craig Strong
- **Old World:** Linda Wilson

Student Representative: Heather Major

The vote was very close for the Alaska and Northern California positions. People who ran for those positions are encouraged to try again—or please consider running for an officer's slot for 2009 (see below).

The turnout for the election was *very* poor (only 62 ballots were returned—that's barely more than *four* times the size of the Exco!). We had hoped that more members would vote, since we offered e-mail ballots and a choice of candidates for some positions. If you think you know how more PSG members might become interested in voting, please let us know.

At the end of this year, the following Exco positions will be filled for 2009:

- **Officers**
- **Chair-elect**
- **Secretary**
- **Vice-chair for Conservation**
- **Regional Representatives**
- **Canada**
- **Oregon/Washington**
- **Southern California**
- **Non-Pacific U.S.**

Candidates for the Non-Pacific U.S. representative have already volunteered. If you know someone who would like

to be on the ballot next time (including you!), please let Pat Baird know; her e-mail is pabaird@sfu.ca

PACIFIC SEABIRDS WILL GO MOSTLY ELECTRONIC

Starting in 2009, *Pacific Seabirds* will be mailed *only* to those members who *specifically request* it. Members who do not request a hard copy of *Pacific Seabirds* via mail will be able to download every issue from the PSG website, www.pacificseabirds.org. The paper and electronic versions of the journal will still look the same.

Volume 34 (2007) and Volume 35 (2008) will continue to arrive in the mail as usual, in addition to being posted on the website. *You are welcome to continue receiving Pacific Seabirds in the mail as long as you wish.* However, *any member who wants to continue receiving copies by mail after 2008 must contact the Treasurer, Ron LeValley.* His e-mail is ron@madriverbio.com; phone (707) 326-0300; address Mad River Biologists, 920 Samoa Blvd., Suite 210, Arcata, CA 95521, USA.

The PSG Executive Council decided in favor of distributing *Pacific Seabirds* electronically because many journals already are electronic (including our other journal, *Marine Ornithology*), and because the change will save printing and mailing costs. Some people prefer to receive their journals online. However, we will continue to send *Pacific Seabirds* through the mail on request, because some members cannot get it over the Internet conveniently or may just prefer a paper copy.

Libraries will automatically continue to receive *Pacific Seabirds* through the mail, since this can be important for reliable archiving.

(This notice will be repeated in the two next issues of *Pacific Seabirds*.)

NEW COORDINATOR FOR MARBLED MURRELET TECHNICAL COMMITTEE

Bill Ritchie has replaced Danielle Escene as coordinator of PSG's Marbled Murrelet Technical Committee. Bill has extensive experience as a Marbled Murrelet specialist with the Washington Department of Fish and Wildlife, including marine and terrestrial surveys, research, and conservation. He also has experience with fisheries bycatch, threatened and endangered species, oil spill response, fisheries sampling, forest restoration, and beached bird surveys.

Thank you for taking on this important position for PSG, Bill!

NOMINATE SOMEONE FOR A PSG AWARD

PSG gives two awards for contributions to seabird research, conservation, or education. Any member may nominate a person for PSG's Lifetime Achievement Award (LAA) or Special Achievement Award (SAA). The LAA is given in honor of significant, long-term contributions in the field of seabird work, in the Pacific or worldwide; the SAA is given for outstanding service to PSG or for exemplary accomplishment for seabirds.

To nominate someone, submit a one-page summary of the person's accomplishments and contributions to the Past Chair, who is coordinator of the Awards Committee, by 30 June of any year.

If your candidate is approved by the Executive Council, you will participate in the awards ceremony at PSG's Annual Meeting. You will give a short talk (15-30 minutes) about the individual's career and accomplishments. The tribute will

be based on information from the person and possibly from his or her colleagues; it usually includes photographs of past activities.

Pacific Seabirds publishes a written report on each award in the next issue. You will be expected to submit a short

article (1-5 pages), based on your presentation at the awards ceremony, in time for that issue's deadline.

PSG welcomes nominations from any member. In some years we may give no awards, if suitable candidates are not approved.

SEABIRD NEWS

FISH TAG FLIES FROM OREGON TO NEW ZEALAND

A passive integrated transponder (PIT) tag that was implanted in a steelhead (*Salmo gairdneri*) at a Columbia River hatchery was recovered two years later in New Zealand. Since steelhead do not migrate across the equator, the two best theories about the tag's travels involve Sooty Shearwaters (*Puffinus griseus*).

The electronic tag was noticed by a Maori hunter on Big Moggy Island off the south island of New Zealand, where the shearwaters nest in burrows among tree roots. Until it turned up in April 2007, the tag had last been recorded in May 2005, as steelhead smolts were passing the Bonneville Dam.

The fish may have been eaten by a shearwater that was scavenging fishery wastes behind a processing vessel in the north Pacific. Steelhead are not a commercial species, but they are sometimes taken as bycatch. Alternatively, the fish may have been predated as it passed below one of the large shearwater flocks that frequent the mouth of the Columbia River. In that case, however, the tag would have stayed in the shearwater's

gastrointestinal tract for more than a year, in spite of vigorous regurgitations while the bird was feeding its chick.

MIDWAY WILL WELCOME VISITORS AGAIN

After a six-year hiatus, Midway Atoll will reopen to tourist flights in March 2008. The Oceanic Society will sponsor a limited number of tours, which will accommodate a maximum of 16 visitors each.

Tourists have been permitted to visit the island since 1998, when the naval station there was decommissioned. Tourists were able to fly from Honolulu to Midway on Aloha Airlines between 1998 and 2002, during which time the tour company Phoenix provided lodging and tours on the island. Tourists were able to enjoy Midway's immense albatross colony, numerous other seabirds, endangered sea turtles and seals, and historic ruins from World War II and earlier. Phoenix ceased operations on Midway in 2002, and commercial flights stopped serving the island. Since then, tourists have only been able reach the island by cruise vessel and to stay for a

few hours. Special visits were arranged for veterans of the Battle of Midway on two anniversaries of the battle. A small refuge staff has continued to manage the island, with the help of volunteers.

When President Bush declared the northwest Hawaiian Islands a national marine monument in 2006, Midway was designated as the area where the public could view and learn about the monument. Midway Atoll National Wildlife Refuge has developed a new plan for managing visitors, which is more conservative than previously. Forty visitors will be allowed to stay overnight at any one time (the previous limit was 100). The public may visit the islands by joining one of seven weeklong tours between March and December 2008. The visits will include guided wildlife tours, historical excursions, and snorkeling in the lagoon from the beach or a boat. Tourists will have the option of volunteering for refuge management activities such as removing invasive plants.

The cost for a tour is expected to be \$4,890 per person, including the 4 1/2-hour charter flight from Honolulu on a turboprop plane.

More information is available at <http://www.oceanicsociety.org> or at <http://www.fws.gov/midway>

EXECUTIVE COUNCIL MINUTES

The Pacific Seabird Group's Executive Council (Exco) meets twice a year, at the winter Annual Meeting and during the summer by conference call. Each meeting's Minutes are available after they are approved at the next Exco meeting: a summary in *Pacific Seabirds*, and the full minutes on the group's web site (www.pacificseabirds.org).

SUMMARY OF MINUTES OF THE EXECUTIVE COUNCIL MEETING OF THE PACIFIC SEABIRD GROUP, 7 FEBRUARY 2007 Asilomar Conference Center, Pacific Grove, California

Minutes of previous meeting

The Minutes of the Exco's teleconference meeting on 7 September 2006 were approved unanimously. [For summary of these minutes see *Pacific Seabirds* 33:86, 2006.]

OFFICER REPORTS

1. Report from Past Chair (Bob Day)

Discussion centered on methods for distributing travel funds. It was decided to give smaller amounts to more students, rather than larger amounts to fewer; this information will be put in the Handbook. In addition, it will be specified in the web application page that recipients of student awards must be first author of a paper or poster.

2. Report from Chair (Katie O'Reilly)

Discussion centered on how to get people to attend the Business Meeting.

3. Report from Chair-Elect (Verena Gill)

Discussion centered on the deadlines for annual meetings (abstracts, awards, early registration). It was decided that in the future the deadline for abstract and travel awards will be 4 months in advance of the meeting, and that this information would be added to the Handbook.

4. Report from the Treasurer (Ron LeValley)

A number of membership issues were discussed (definition, payment methods, timeline for memberships): Ron LeValley will add to the web site that PSG membership runs from January

to December. Also discussed as many members are now paying online for renewal, meetings, and publications; (2) Chubb Insurance costs as well as income from the general meeting; (3) savings from the low cost of publishing *Marine Ornithology*; (4) filing taxes from successful meetings; (5) budgeting for award plaques each year (\$200-250), for prizes to students for Student Awards (e.g. a book), and for Lifetime Achievement and Special Achievement Awards (\$1500); (6) Whether to close the Morgan Stanley account (open with about \$25,000), and put that money into the Conservation Fund (\$10,000) and the Endowment Fund (about \$15,000; see below).

5. Report from Vice-Chair for Conservation (Craig Harrison)

A motion was passed unanimously to move \$10,000 from the Morgan Stanley account to the new Conservation Fund (see Treasurer's Report, above).

6. Report from Trustees of Endowment Fund (Ron LeValley)

A motion was passed unanimously to put the remainder of the Morgan Stanley funds into the Endowment Fund (see Treasurer's Report, above)

7. Report from Student Representative (Jo Smith)

Discussion centered around the Student Questionnaire, which found that more MS students are retained as PSG members (they tend to go to agencies), whereas more PhD students leave PSG (they tend to go to academia). There was recognition of the need for judges of student papers and posters to give

feedback to the authors. It was decided that students will get feedback at future meetings.

COMMITTEE REPORTS

1. Report from the Local Organizing Committee (Jim Harvey, Hannah Nevins, Lisa Wertz)

Discussion centered on the size of venues for PSG meetings, and whether with 275-280 people at the meeting, Asilomar was appropriate.

2. Report from Elections Committee (Pat Baird, Chair)

Discussion centered on both the good and bad aspects of the electronic balloting method. Bad results were that a few ballots came through with no votes, turnout was not good. In addition, Pat noted that the system for electing Exco members could be improved if Exco members had to find people to replace or run against them, and if members of younger cohorts could get involved.

3. Report from PSG 2020 Long-Range Planning Committee: see *Pacific Seabirds* 34(1):34.

4. Report from Corresponding Membership Committee (Malcolm Coulter)

A motion was passed unanimously to increase the number of Corresponding Members from 8 to 12. It also was agreed that it is not worthwhile revising the Bylaws to do this; changes will be incorporated into the Bylaws later.

5. Report from Marbled Murrelet Technical Committee: see *Pacific Seabirds* 34(1):32-33.

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6. Report from Xantus's Murrelet Technical Committee (Brad Keitt and Shaye Wolf)

Discussion centered on the oil spill letter written about Xantus's Murrelet; a few small changes in made. In addition, Bradd Keitt stepped down as Co-chair, and a motion passed unanimously that Melinda Nakagawa be appointed as new co-chair of Xantus's Murrelet Technical Committee.

7. Report from Loon/Grebe Technical Committee: see *Pacific Seabirds* 34(1):32.

8. Report from Seabird Monitoring Committee (Scott Hatch)

The Pacific Seabird Monitoring Database has been launched but will not be up on the Internet until security concerns can be addressed. The database contains "2700 serious records" and "18,000 other older records," the latter of which will be certified and then published. It was decided to take a species-account approach in the database.

9. Report from Japan Seabird Conservation Committee (Motohiro Ito)

Discussion centered on the oil spill in Japan and the lack of government coordination in the cleanup. It was suggested that PSG adopt an advisory role, perhaps with industry. Because the 2009 PSG meeting will be in Japan, PSG will work with the media there ahead of time to showcase interest in seabirds. Various people's names were suggested to help out with this. As John Fries and Koji Ono have resigned, a motion was passed unanimously to appoint Motohiro Ito as new Chair for Japanese Conservation.

10. Report from Mexico Seabird Conservation Committee

Xico Vega was not present, nor were any other Mexican Seabird Conservation Committee members. There has been no contact with this committee during the past year, in spite of efforts by PSG members. Bob Day suggested making this an "inactive committee" because the goals and structure are already in place for this committee.

OTHER REPORTS

1. Report from Special Awards Subcommittee (George Divoky)

This group is composed of former and current chairs, and starting in 2008 will be organized by the most recent Outgoing Chair. The Exco will continue to have final approval of nominees.

2. Report from Representatives to Ornithological Council (Doug Forsell)

Discussion centered on the Ornithological Council's role in: permits, animal welfare (translating "Use of Wild Birds in Research" into Spanish, perhaps into French and Portuguese too), and the OC's website, BirdNet. There was recognition that PSG may not be pulling its weight in terms of contributions to the OC; a motion passed 8-3 to donate \$1000 to the OC, once the 2007 budget is approved.

PUBLICATION/COMMUNICATION ISSUES

1. Report from Editor of *Pacific Seabirds* (Vivian Mendenhall)

Notice needs to be sent to all members that *Pacific Seabirds* will cease to exist as a hard copy, starting after the 2008 volume, except for people who specifically request it. This message will be highlighted on the Listserve, and will be published in *Pacific Seabirds* (through Volume 35, 2008) before the switchover. Libraries will continue to receive hard copies.

2. Report from Managing Editor of *Marine Ornithology* (Tony Gaston)

Discussion centered on appointing and training a new Managing Editor, as Tony (who was not present) may retire in 3-4 years. This raises a number of issues, including how to evaluate replacements, defining the term of an editor, and how to improve the visibility of *Marine Ornithology* on the web. (MO currently is not on IC Web of Science because its publication is more than a year behind.) It was agreed that *Marine Ornithology* would get current, and that more Associate Editors would be found to assist with this job. Louise Blight agreed to contact Tony about advertising, and Jo Smith to contact him about the web. A detailed budget for 2007 support for *Marine*

Ornithology is needed.

3. Report from of Publications Committee (Pat Jodice)

David Ainley requested assistance for \$5000 for publication of his and Larry Spear's monograph in *Studies in Avian Biology*. That request was supported by the Chair of Publications Committee. However, Publication Funds come from the Endowment, and it is the intent of the Bylaws to only support in-house publications, e.g. *Marine Ornithology*. The Exco recognized that we need a change in the Bylaws concerning the Endowment Fund, to clarify that "publications" means *Marine Ornithology* or other PSG-sponsored publications.

A motion to take \$5000 out of PSG's money market fund for page charges for the Ainley-Spear monograph in *Studies in Avian Biology* failed 5-6-0. A follow-up motion passed unanimously that says a manuscript must be submitted to a PSG publication before the author requests our support for publication in another journal. A second follow-up motion to fund publication of the Ainley-Spear monograph in *Marine Ornithology*, if that was acceptable to the authors, passed 9-1-0.

Two issues were identified: (1) that PSG needs to have a means to publish monographs; and (2) that we need a better method to inform people that PSG will give monetary support only for publication in *Marine Ornithology* or another PSG publication.

4. Report from PSG Webmaster: see *Pacific Seabirds* 34(1):33-34.

5. Listserve issues (Verena Gill)

Verena will post "what's new at PSG" every 3 or so months on the Listserve. This is a closed list—if you try to send out emails from an email address other than the one that is recorded for you on the Listserve, it will not be accepted or sent out by the Listserve.

CONSERVATION ISSUES

Proposed PSG Conservation Small-Grant Program (Bob Day and Craig Harrison)

The proposed objectives for the

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grant were presented: "The objective of the Conservation Small Grant Program is to advance the conservation and restoration of seabirds by providing funds or supplies to scientists (student or non-student) for conservation actions in countries in the Pacific. Emphasis is on restoration and protection of Seabird populations." There was recognition that these objectives need to be reviewed and rewritten so as to be up and running by 1 April 2007. Further, Ron LeValley will put money into the Conservation Fund account from the Money Market fund [see "Treasurer's Report," above]. In addition, we need a link to the Conservation Fund on the Website and will put the information on the Listserve to get the word out. Finally, a motion passed unanimously to form a committee for the Conservation Fund with Bob Day

as Chair, and additional members Doug Forsell, Craig Harrison, Ken Morgan, and Malcolm Coulter.

OTHER BUSINESS AND ISSUES

1. Open Data Access (Falk Huettmann)

Discussion centered on the pros and cons of sharing data through open-access databases. Issues included the misinterpretation of data, central data storage, a global-change national directory, standards, and data pirates. No interest was expressed in forming a task force to pursue the issue, so no motion was put forward.

2. Future meetings and dates

Plans were discussed for the 35th Annual Meeting at the Semi-Ah-Moo Resort, Blaine, Washington, February 27 to March 2, 2008. Tom Good will be

the Local Chair. George Divoky, Lora Leschner and Julia Parrish will be on the Local Organizing Committee. They will work with Doug Bertram on themes and associated plenaries. Oregon State University will again be contracted to provide online registration. Their 4% fee for credit card billing needs to be included in the Annual Meeting's budget.

There was brief discussion on upcoming meetings, including the special meeting in Taiwan in Oct 2007 (not an Annual Meeting). Other proposed meetings are: 36th: Hokkaido, Japan, February 2009, Local Chair Yutaka Watanuki; 37th: Long Beach, California, January 2010; and 38th: Vancouver, B.C., October 2010 (in association with the International Seabird Conference), Local Co-chairs Louise Blight and Jo Smith. There will be no meeting in 2011. The 2012 meeting may possibly be in western Mexico.

CORRECTION

On page 29 of *Pacific Seabirds* 34(1), Spring 2007, there was an error in the caption for the first photo. Hanna Herron should be Hanna Baird-Herron, and Aravis Herron should be Aravis Baird-Herron. The editor apologizes for the mistakes.

REGIONAL REPORTS

Regional reports summarize current seabird work of interest to PSG members. Regional Reports generally are organized by location of the work, not by affiliation of the biologist. They should not be cited without permission of the authors. The report for Northern California was not received by press time and will appear in the next issue.

ALASKA

Compiled by **Shiway Wang**

CHUKCHI SEA

Annual seabird monitoring was conducted at Cape Lisburne in the Alaska Maritime National Wildlife Refuge (AMNWR), where **Dave Roseneau** and **Jim Schneeweis** collected data on the population and reproductive success of Black-legged Kittiwakes (*Rissa tridactyla*) and Common and Thick-billed Murres (*Uria aalge* and *U. lomvia*).

Heather Wilson of U.S. Fish and Wildlife Service (USFWS), Migratory Bird Management, led efforts to capture and deploy satellite transmitters in nesting Pacific Common Eiders (*Somateria mollissima v-nigra*) at Cape Espenberg as part of a cooperative project with **Margaret Petersen** (U.S. Geological Survey, Alaska Science Center). The project aims to monitor migration patterns of nesting Common Eiders in Alaska in relation to avian influenza and provide information on population structuring of Pacific Common Eiders. **Corrine Brown**, DVM and **Joanne Luebbert** (Alaska Wildlife and Wildfowl Conservation) implanted the satellite transmitters and **Matt Sexson** (USGS) acted as the primary field assistant. Twenty-five total breeding Common Eiders were tagged and all transmitters remained active as of October 2007. No captured eiders tested positive for H5N1 avian influenza.

BERING SEA

Ed Murphy of the University of Alaska, Fairbanks (UAF) monitored Common Murres, Black-legged Kittiwakes, and Pelagic Cormorants (*Phalacrocorax pelagicus*) at Bluff,

80 km east of Nome, in early August. Numbers of murres were high, suggesting continued stability or slow increase over the past few decades. Numbers of kittiwake nests were low and adult attendance at nests with chicks was sporadic, suggesting a continuing decline in numbers of adults and another year of low breeding success. Numbers of cormorant nests were similar to previous years and breeding success was high, most nests contained at least 2 fledgling-size chicks and some contained 4 large chicks.

Jim Lovvorn and students **Jason Kolts** and **Chris North** recently completed a second icebreaker cruise to the Bering Sea, where they are studying food webs that support threatened Spectacled Eiders (*Somateria fischeri*) during winter. In particular, they are examining how northward expansion of competing predators such as fish, crabs, snails, and sea stars as the climate warms may affect the prey base of wintering eiders.

Art Sowls (AMNWR) coordinated monitoring of seabirds on the Pribilof Islands. He also coordinated with tribal governments on the land-based rat prevention program. On St. George, **Ram Papish**, **Anne Orlando**, **Andrew Keller**, **Rachel Holser**, and **Alexis Will** recorded survival of kittiwakes, and timing of nesting events, reproductive success, and food habits of Red- (*Rissa brevirostris*) and Black-legged Kittiwakes and Common and Thick-billed Murres. Papish continued a study of survival of Least Auklets (*Aethia pusilla*), including banding and resighting birds at the Ulakaia colony. **Nikolai Konyukhov** investigated ways in which Least Auklet productivity could be monitored at St. George. Auklets nest in deep crevices

there due to the presence of arctic foxes (*Alopex lagopus*), so previous attempts at estimating productivity have been largely unsuccessful. On St. Paul Island, **Greg Thomson** and **Slade Sapora** monitored timing of nesting events, reproductive success, and food habits of Least Auklets. They also led a seabird survey at Walrus Island, where a particular interest was the impacts of arctic foxes on the distribution of birds. Some survey work was also done at Otter Island.

Diane Calamar Okonek and **Brian Okonek** of the Alaska Department of Fish and Game (ADF&G) monitored Black-legged Kittiwake, Common Murre and Pelagic Cormorant populations and productivity at Round Island within the Walrus Islands State Game Sanctuary, in northern Bristol Bay and southern Kuskokwim Bay. **Joe Meehan**, **Marian Snively** (ADF&G), and volunteers **Laura Kruger** and **Lisa Meehan** surveyed nesting populations of Black-legged Kittiwakes, Common Murres, Pelagic Cormorants, Double-crested Cormorants (*Phalacrocorax auritus*) and other seabirds throughout the Walrus Islands State Game Sanctuary.

Heather Wilson completed her PhD thesis on the population ecology of Pacific Common Eiders at UAF. Heather also conducted an annual aerial photographic survey of Black Brant (*Branta bernicla*) colonies on the coastal fringe of the Yukon-Kuskokwim Delta. The survey was previously conducted by **Mike Anthony** of the U.S. Geological Survey (USGS). USFWS volunteers **Mike Walgren**, **Lisa Andreano**, and **Adrian Gall** monitored seabirds and swabbed Glaucous Gull (*Larus hyperboreus*) butts on St. Lawrence Island.

Kathy Kuletz and **David Irons** (USFWS) completed the second year of a two-year project to put seabird observers on ships of opportunity to survey seabirds in pelagic waters of Alaska. The work was funded by USFWS and the North Pacific Research Board (NPRB). In 2006 and 2007 they joined 24 cruises with over 300 days at sea and surveyed over 30,000 km of transects, primarily in the Bering Sea. The National Oceanic and Atmospheric Administration (NOAA) provided space on their research vessels. The observers also joined the St. Lawrence Island Polynya study with principal investigators **Jackie Grebmeier** (University of Tennessee) and **Jim Lovvorn** (University of Wyoming) on the U.S. Coast Guard Cutter *Healy*, the Global Ocean Ecosystem Dynamics (GLOBEC) study (with **Russ Hopcroft**, UAF) on the M/V *Tigllax*, the Ocean Carrying Capacity/Bering-Aleutian Salmon International Survey (BASIS; principal investigator **Ed Farley** of NOAA), and an International Polar Year cruise on the Canadian icebreaker *Laurier*.

The pelagic data will be entered in the North Pacific Pelagic Seabird Database (NPPSD), and will eventually be analyzed in conjunction with associated oceanographic and fisheries data. Updating and standardizing at-sea protocols used in Alaska were among the project's objectives. At-sea observers in 2007 included **David Hyrenbach**, **Kathy Kuletz**, **Liz Labunski**, **Kirsten Lindquist**, **Sally Marston**, **Scott Mills**, **Tamara Mills**, **Mark Rauzon**, **Marty Reedy**, **Martin Renner**, and **Kelsey Sullivan**. The Alaska at-sea observer program will continue from 2008 to 2010, with a focus on the Bering Sea. Principal Investigator Kathy Kuletz will be coordinating with others associated with the Bering Sea Integrated Ecosystem Program, with funding from NPRB and USFWS. Under the same NPRB program, at-sea surveys will be conducted on a finer scale around the Pribilof Islands, in collaboration with the Patch Dynamics Study (PDS; principal investigator **Andrew Trites**, University of British Columbia). Also as part of the PDS, **Dan Roby** (Oregon

State University), **David Irons**, **Vern Byrd** (USFWS), and **Sasha Kitaysky** (UAF) will be conducting studies of colonial birds at the Pribilof Islands beginning in 2008. This project is coupled with the Bering Ecosystem Study (BEST), to evaluate ecosystem processes in the eastern Bering Sea.

Karen Fischer and **Rob Suryan** (Oregon State University) analyzed simultaneous satellite tracking and remote sensing data for the three albatrosses in Alaskan waters: Short-tailed (*Phoebastria albatrus*), Laysan (*P. immutabilis*), and Black-footed (*P. nigripes*). They documented resource partitioning among albatross species and confirmed suspected differences in their distribution patterns, as well as habitat use of juvenile Short-tailed Albatrosses relative to adults and sub-adults. Data from Short-tailed Albatrosses were put to immediate use by the North Pacific Fisheries Management Council, which modified their proposals to change regulation of seabird deterrents in the Alaskan longline fisheries. We also have been integrating the albatross tracking with data from commercial fisheries to assess interspecific differences in potential albatross-fishery interactions. You can view maps and information about satellite tracking of albatrosses at www.wfu.edu/albatross.

Karen Laing (USFWS) worked with the eider recovery team to determine and implement recovery actions for threatened Steller's (*Polysticta stelleri*) and Spectacled Eiders on Alaska's west coast. Research and monitoring related to recovery include: (1) a long-term study of breeding biology and annual survival of Spectacled Eiders at Kigigak Island, by **Bryce Lake** of the Yukon Delta National Wildlife Refuge (NWR); (2) migration studies of Steller's Eiders in southwest and south-central Alaska by **Dan Rosenberg** (ADF&G); (3) a spring Steller's Eider survey in southwest Alaska by **William Larned** (USFWS); (4) aerial and nest plot surveys for eiders and other waterfowl in the coastal zone of the Yukon Delta National Wildlife Refuge, by staff of the refuge and Migratory Bird Management (USFWS); (5) band-

ing of Steller's Eiders by **Kristine Sowl** and colleagues at Izembek NWR and by **Tim Bowman**, **Chris Dau**, **Dennis Marks**, **Shawn Hawks**, **Susan Savage**, **Matthew Wilson**, and **Ryan Bradley** (all of USFWS) at Nelson Lagoon; (6) a study of eider population dynamics and predation by red (*Vulpes vulpes*) and arctic foxes and on the Yukon Delta, by **Paul Flint**, **Joel Schmutz**, and **Jason Schamber** (USGS); and (7) a study on Steller's Eider movements within Cold Bay and Izembek Lagoon by **Ellen Lance** (USFWS) and **Paul Flint** (USGS). Recovery projects also include studies with captive eiders by **Tuula Hollmen** at the Alaska SeaLife Center. (See the section on the North Slope for more eider recovery projects.)

ALASKA NORTH SLOPE

Steffen Oppel (UAF and USGS-Alaska Cooperative Fish and Wildlife Research Unit) continued his research on the migration of King Eiders (*Somateria spectabilis*) from northern Alaska into the Bering Sea. Between 2002 and 2006 Oppel, **Abby Powell** (USGS, UAF) and **Robert Suydam** (North Slope Borough) tracked 85 adult King Eiders with satellite transmitters and found highly variable migration strategies. In August 2007 they captured 44 juvenile King Eiders 20 km southeast of Teshekpuk Lake and implanted them with satellite transmitters that provide locations every 4 days. The migration of juvenile King Eiders can be monitored via GoogleEarth at <http://mercury.bio.uaf.edu/kingeider>. For more information contact Oppel (steffen.oppel@gmail.com). In conjunction with the North Slope Borough Department of Wildlife Management, Steffen conducted the 6th season of King Eider nest monitoring and trapping at a study site 10 km south of Teshekpuk Lake (North Slope Borough, Alaska) in June and July 2007. They collected egg, blood, feather, and diet samples for stable isotope analysis to elucidate patterns of nutrient allocation to egg formation in King Eiders, as well as to relate breeding strategies to events during the preceding winter.

Heather Wilson and **Ed Mallek** (USFWS Migratory Bird Management) conducted an annual aerial survey of molting Black Brant and other geese in the Teshekpuk Lake area.

Karen Laing (USFWS) worked with the eider recovery team to determine and implement recovery actions for threatened Spectacled and Steller's Eiders. Research and monitoring on the North Slope included a study of breeding Steller's Eiders at Barrow by **Nora Rojek** (USFWS) and an aerial eider survey on the North Slope by William Larned, **Robert Stehn** and **Robert Platte** (USFWS). Rojek coordinated the USFWS monitoring of threatened Steller's Eiders at Barrow. She was assisted by **Jewel Bennett**, **Ted Swem**, **Neesha Wendling**, **Matthew Wilson**, volunteers **Claudia Burger**, **Dean Kildaw**, **Sadie Uman**, and Barrow high school student interns **Anton Edwardson**, **Nicole Kanayurak**, **Olive Kanayurak**, and **Katie Roseberry**. Study components included a breeding pair survey, nest searches, nest monitoring, and placement of digital cameras on active nests to monitor predation or other causes of failure. Nests were found for a third year in a row and nest success was 47%. (See the Bering Sea section for additional eider recovery projects.)

Bob Ritchie, **Tim Obritschke-witsch**, and **Jim King** of ABR, Inc.—Environmental Research and Services (ABR) continued their annual aerial survey for breeding Steller's Eiders in the Barrow region for the Bureau of Land Management, North Slope Borough, and ConocoPhillips Alaska, Inc. **Betty Anderson** and **Rick Johnson** (ABR) completed the 15th year of aerial surveys for pre-nesting eiders on the Arctic Coastal Plain for ConocoPhillips, Alaska, Inc. These surveys enumerate and map locations of Spectacled, King, and Steller's Eiders in the oilfields between the Kuparuk River and the northeastern National Petroleum Reserve—Alaska. Rick Johnson and **Lauren Attanas** (ABR) completed the fourth year of surveys for breeding Steller's Eiders in the vicinity of the Barrow International Airport for

the Alaska Department of Transportation and Public Facilities. This study requires locating and monitoring any active nests to determine possible disturbance by airport construction activities. Rick Johnson continued the third year of a study of the effects of oil development on breeding Spectacled Eiders near a new drill site on the outer Colville River Delta (funded by ConocoPhillips Alaska, Inc.). This study is employing time-lapse cameras and thermistors in eggs to monitor disturbance responses and nest survival of breeding females using habitats near the drill site, where construction activities and aircraft overflights are occurring. Betty Anderson is continuing her long-term study in the Kuparuk Oilfield for ConocoPhillips Alaska, Inc. on breeding Spectacled Eiders. Besides surveys for pre-nesting eiders in the oilfields, nesting females were monitored for nesting success and incubation constancy with thermistors in eggs.

Rick Johnson, **Ann Wildman**, and **Julie Parrett** (ABR) are conducting a long-term study of Yellow-billed Loons (*Gavia adamsii*) on the Colville River Delta for ConocoPhillips Alaska, Inc. Aerial surveys of nesting and brood-rearing loons are used to monitor annual abundance, nest survival, and habitat use.

Bob Ritchie, Betty Anderson, and Rick Johnson (ABR) continued their annual aerial survey for brood-rearing Brant on the Arctic Coastal Plain. This survey of the coast between Prudhoe Bay and Barrow enumerates brood-rearing geese and maps their use of coastal salt marshes. Funding is from the North Slope Borough and ConocoPhillips Alaska, Inc.

ALEUTIAN ISLANDS

Jeff Williams coordinated studies in the archipelago, including long-term seabird monitoring for AMNWR at Aiktak, Kasatochi, and Buldir Islands.

At Aiktak Island in the eastern Aleutians, **Micah Miller** and **J.J. Wells** monitored timing of nesting events, reproductive success, food habits, and population size of Glaucous-winged

Gulls (*Larus glaucescens*), Black Oystercatchers (*Haematopus bachmani*), Tufted Puffins (*Fratercula cirrhata*), Ancient Murrelets (*Synthliboramphus antiquus*), and Leach's and Fork-tailed Storm-Petrels (*Oceanodroma leucorhoa* and *O. furcata*).

There are 3 annual monitoring sites in the central Aleutians: Kasatochi, Ulak, and Koniui Islands. On Kasatochi, **Brie Drummond** and **Allyson Larned** primarily studied Least and Crested (*Aethia cristatella*) Auklet productivity, chick growth, food habits, attendance patterns, populations and adult survival rates. They also monitored population levels of Pigeon Guillemots (*Cephus columba*), Pelagic and Red-faced (*Phalacrocorax urile*) Cormorants, and Leach's and Fork-tailed Storm-Petrels. At nearby Ulak Island, populations and productivity of burrow-nesting seabirds were monitored, and cormorant and murre population levels were recorded.

AMNWR staff conducted reconnaissance surveys in July and August of several islands in the central Aleutians which are rarely visited: Aziak and Ogloodak islands were surveyed by **Brie Drummond**, **Richard Hannan**, **Allyson Larned**, **Barry Sampson**, and Jeff Williams; Chugul, Chisak, and Silak islands were visited in August by Brie Drummond, Allyson Larned, and Jeff Williams.

At Buldir Island in the western Aleutians, **Erik Andersen**, **Scott Freeman**, **Nick Seferovic** and **Cornelius Schlawe** conducted the 19th year of annual seabird monitoring. Species monitored included Red- and Black-legged Kittiwakes, Common and Thick-billed Murres, Least, Crested, Whiskered (*Aethia pygmaea*) and Parakeet (*A. psittacula*) Auklets, Pelagic and Red-faced Cormorants, and Leach's and Fork-tailed Storm-Petrels. For most species, they monitored timing of nesting events, productivity, food habits and population levels.

Steve Ebbert (AMNWR) led a project to trap foxes on islands in the Sanak Group, a cooperative partnership with the Sanak Corporation, to restore native seabird populations.

Vernon Byrd and Jeff Williams led a team to Avatanak to conduct surveys of the early recovery of seabird populations following removal of introduced arctic foxes. This is a restoration project using settlement funds from the *Kuroshima* oil spill at Unalaska. Jeff Williams and Vernon Byrd surveyed islands near Akutan in the eastern Aleutians for seabirds and invasive species, because the Akutan Corporation has proposed a trade of the islands to the AMNWR. Vernon Byrd and **Laurie Daniel** completed draft reports assessing injury to birds following the *Selendang Ayu* oil spill on Unalaska Island. Preliminary restoration planning is underway.

Betty Anderson (ABR) continued work related to the impacts of proposed airport modifications at Dutch Harbor on wintering birds, especially threatened Steller's Eiders. **Gerald Frost, Matt Macander, and Alex Prichard** (ABR) completed a draft study to identify and map habitats used by migratory Aleutian Cackling Geese (*Branta hutchinsii leucopareia*) in the Near Islands (Attu, Agattu, Shemya, and Nizki-Alaid) in the western Aleutians. Habitat-use data were collected for migrant geese on Shemya and Attu islands, and habitat maps were prepared for Attu, Agattu, Shemya, and Nizki-Alaid islands. The U.S. Air Force funded this project to help identify potential goose habitat on other islands and to encourage continued recovery of this recently delisted species.

GULF OF ALASKA

Bob Day and **Adrian Gall** (ABR) continued research on the status and distribution of seabirds and marine mammals in lower Cook Inlet. This work is related to port construction for the proposed Pebble gold mine. They also studied movements and flight altitudes of seabirds in upper Cook Inlet to assess risk related to a port for the proposed Chuitna coal mine. Bob Day, **Jeff Barna** and **Melinda Malek** from ABR's Oregon office, along with Kodiak USFWS biologists **Rich MacIntosh** and **Bill Pyle**, conducted the first radar-based study of movements and behavior

of Kittlitz's Murrelets (*Brachyramphus brevirostris*) on Kodiak Island. Day and **Michelle Kissling** (USFWS) began research on plumage variation in Kittlitz's Murrelets.

Heather Renner coordinated seabird monitoring for AMNWR in the Semidi Islands. **Joel Helm** and **Tyra Zeman** monitored timing of nesting, reproductive success, food habits and populations size for Glaucous-winged Gulls, Black-legged Kittiwakes, Common and Thick-billed Murres, and Rhinoceros Auklets (*Cerorhinca monocerata*) on Chowiet Island from May to early September.

Don Dragoo, Martin Renner, Cathy Flanagan, Gary Drew (USGS), **Lisa Climo, Danielle Jerry, Deb Rudis** and others from USFWS conducted the Seabird, Fish, Marine Mammal and Oceanography Coordinated Investigations (SMMOCI) project at the Semidi Islands. This multi-year project includes surveying transects at sea near seabird colonies where simultaneous monitoring is being conducted of nesting chronology, productivity and populations. The goal of this multi-year project is to characterize the nearshore environment and potential prey resources near monitored colonies.

At East Amatuli Island in the Barrens, **Arthur Kettle, Leah Yandow, Meaghan Conway, and Trevor Watts** (AMNWR) monitored reproductive success, prey, and population trends of Fork-tailed Storm-Petrels, Black-legged Kittiwakes, Common and Thick-billed Murres, and Tufted Puffins. Population data were also gathered for Glaucous-winged Gulls. They tried using motion-activated cameras to help identify prey items that Tufted Puffins brought to their chicks.

Leslie Slater and **Bob Schulmeister** (AMNWR) visited Barwell Island to modify World War II structures to prevent murre entrapment. Unit Biologist Slater received a report of significant Common Murre mortality in these structures. Because this was a former military site, the Army Corps of Engineers funded a visit to the island to reconnoiter and rectify

the problem. Bob Schulmeister, **Richard Ragle** (Army Corps of Engineers) and Slater discovered that birds had been trapped in a pillbox over an extended period of time. Schulmeister was able to close the trap door that allowed birds to fall into the structure, and secured it so that it couldn't easily be opened again by people exploring the island.

Scott Hatch (USGS) continued research and monitoring on Middleton Island, including continuation of the protocol for supplemental feeding of Black-legged Kittiwakes in the radar-tower colony. Construction continues on a Common Murre research habitat to complement the tower colony of kittiwakes and Pelagic Cormorants. **Jana Kotzerka** (University of Kiel, Germany) served as camp leader on Middleton and continued her studies of seabird foraging behavior, including deployment of time-depth recorders on cormorants and miniature GPS trackers on kittiwakes. **Hervé Mulard** (Université Pierre & Marie Curie, Paris) completed his third and final season of fieldwork on kittiwake behavioral ecology, and **Sarah Leclaire** (University of Toulouse, France) began studies of mate choice in kittiwakes. Middleton volunteers included **Hilger Lemke** (Germany), **Vincent Bourret** and **Maud Berlincourt** (France), and four Americans—**Emma Sybenga, Steve Mong, Claire Horan, and Valerie Locker**. **Justine Sears** and **Cory Williams** (UAF) visited the island for a week in July, collecting field measurements of Rhinoceros Auklets to supplement Justine's experimental study of captive chicks in 2006. **Matthew Johnson, Brian Guzzetti, and Dan Mulcahy** (USGS) implanted 12 Black Oystercatchers with satellite transmitters on Middleton in June.

In August 2006, the National Park Service (NPS), USFWS, and NOAA signed a General Agreement to increase interagency coordination, in order to establish a seamless network of coastal refuges, reserves, parks and sanctuaries. In the spirit of the Seamless Network Agreement, **Meg Hahr, Shelley Hall** of Kenai Fjords National Park (KFNP), and **Leslie Slater** (USFWS) conducted a

resurvey of 14 seabird colonies in Kenai Fjords National Park on 2–4 July aboard the NPS vessel *M/V Serac*. Objectives were to revisit seabird colonies that had not been surveyed in more than 20 years, and to familiarize park biologists with USFWS monitoring protocols. Species observed (in order of abundance) included Glaucous-winged Gull, Double-crested Cormorant, Pelagic Cormorant, Horned Puffin (*Fratercula corniculata*), and Tufted Puffin. Species that had been observed in 1976 but were not seen during our surveys included Red-faced Cormorant and Arctic Tern (*Sterna paradisaea*). KFNW and AMNWR plan to continue cooperating on seabird surveys in 2007 in order to better understand the dynamics of breeding seabirds along the Kenai Peninsula coast.

A cooperative study on the genetics of molting Common Mergansers (*Mergus merganser*) led by **John Pearce** (USGS) with assistance from **Denny Zwiefelhofer** of Kodiak National Wildlife Refuge (KNWR), resulted in the capture of 121 mergansers from five different locations on KNWR. This was the third year of the study, with the previous two years effort concentrated only on Karluk Lake. Only four recaptures have been made to date, suggesting relatively low fidelity to specific molt sites in Common Mergansers. Preliminary genetic results indicate male Common Mergansers molting on Kodiak come from many locations across their North Pacific range. Funding was from the Sea Duck Joint Venture. The annual coastal survey of molting Harlequin Duck (*Histrionicus histrionicus*) was completed along 600 km of shoreline in KNWR western bays. Results indicate a stable molting Harlequin population for all bays, except for Uyak Bay where Harlequins have declined approximately 70% since the mid-1990s. Excessive hunting pressure (based on unpublished banding data) is suspected to be the primary factor for the decline.

Denny, along with **Iain Stenhouse** (Audubon Alaska) and **Stacy Studebaker**, submitted a manuscript to *Marine Ornithology* detailing the

2006 discovery of a Kittlitz's Murrelet nest and 27 years of accumulated at-sea observations on Kodiak Island.

The Alaska Audubon Important Bird Areas (IBA) committee notified Denny that his nominations for Chiniak Bay (ANMWR) and Northwestern Afognak Island (KNWR and AMNWR) were approved as state IBAs. The state-approved nominations were passed on to the national nomination committee. Another IBA nomination for Uganik/Viekoda Bays (KNWR and AMNWR) was submitted to Alaska Audubon in October for evaluation and possible approval.

Ann Harding (Alaska Pacific University) has continued to work with **John Piatt** (USGS) and colleagues at the Alaska Science Center on publications stemming from their Cook Inlet seabird study. She has just completed the last season of a 4-year study on Dovekies (*Alle alle*) in East Greenland (see North Atlantic regional report).

Piatt and **Mayumi Arimitsu** (USGS) investigated Kittlitz's and Marbled (*Brachyramphus marmoratus*) Murrelet distribution and habitat relationships in KFNW. In addition to conducting standardized strip and line transect surveys during the summer, they also conducted a glacial ecosystem study to assess critical foraging habitat in response to concerns about declining populations. **Erica Madison**, **Shiway Wang**, and **Gary Drew** (USGS) assisted with these efforts.

Kathy Kuletz added a fourth season to her study of Marbled and Kittlitz's Murrelets and other marine birds in Kachemak Bay, lower Cook Inlet. At-sea surveys and conductivity, temperature, depth (CTD) casts were conducted by Kathy, **Karen Brenneman**, **Elizabeth Labunski**, **Tamara Mills**, and volunteers. A final report on the decadal changes, current population status, and marine habitats used by each murrelet species will be available by early 2008. In Prince William Sound, Kathy Kuletz and **Mary Ann Bishop** began their winter surveys of seabird predation on forage fish. The vessel-based surveys and

behavioral observations were conducted in conjunction with Prince William Sound Science Center acoustic surveys of seven bays in Prince William Sound. The goal is to document the extent of seabird predation on juvenile herring during winter months, and examine the environmental and habitat factors associated with seabird predation on herring. Surveys were conducted in March 2007, and will continue in November 2007 and in January and March 2008. This project is part of the Herring Restoration Plan funded by the *Exxon Valdez* Oil Spill Trustee Council. Karen Brenneman conducted the surveys.

PRINCE WILLIAM SOUND

Bob Day and **Steve Murphy** (ABR) continued research on impacts of the *Exxon Valdez* oil spill on seabirds in Prince William Sound.

Brooke McFarland (UAF) collected intertidal community data and local environmental data from Black Oystercatcher breeding territories and random sites in KFNW and Prince William Sound, as part of her master's thesis project on breeding territory characteristics of Black Oystercatchers. KFNW and the Chugach National Forest provided assistance and support.

Aly McKnight, **Kelsey Sullivan**, **Alex Robbins**, **Joe Albanese**, **Andrew Allen**, and **David Irons** (USFWS) and a host of Earth Watch volunteers worked on Black-legged Kittiwakes at Shoup Bay. Irons, along with **Dave Duffy**, **Dan Roby**, **Kent Wohl**, and **Cheryl Rosa** put 20 geolocators on Arctic Terns. **Kelsey Sullivan** and 8 others conducted boat surveys of marine birds in the sound, in a continuing project to monitor species injured by the *Exxon Valdez* Oil Spill. **Kirsten Bixler**, **Natt Jones**, David Irons, Dan Roby and several mink trappers worked on a project examining mink predation on Pigeon Guillemots

SOUTHEAST ALASKA

At St. Lazaria Island, **Leslie Slater** coordinated annual seabird monitoring with a crew consisting of **Elizabeth Goldsmith**, **Brittany Petersen**, **Car-**

rie Hisaoka, and **Kathleen Roush** (AMNWR). They monitored the timing of nesting events, reproductive success, prey and populations of Leach's and Fork-tailed Storm-Petrels, Pelagic Cormorants, Glaucous-winged Gulls, Pigeon Guillemots, Common and Thick-billed Murres, Rhinoceros Auklets, and Tufted Puffins. Inviolate storm-petrel eggs were collected for contaminants analyses by **Deb Rudis** (Juneau Field Office, USFWS).

Michelle Kissling (USFWS) and cooperators from NPS and ADF&G continued a study of the nesting and foraging ecology of Kittlitz's Murrelets in Icy Bay from May to August 2007. They captured and radio-marked 30 Kittlitz's Murrelets, discovered four active nests, and monitored one nest continually using a remote video camera system. In addition, they conducted three population surveys, 90 behavioral watches, and 60 beach-seine pulls for sampling forage fish. Despite the relatively pristine environment, the local population of Kittlitz's Murrelets has declined by 53% (18% per year) since 2002.

Scott Newman (Wildlife Trust, Food and Agriculture Organization) and **Kim Nelson** (Wildlife Trust, Oregon State University) continued their 3-year study with **Darrell Whitworth**, **Harry Carter**, and **Matt Kirchhoff** on the health, activity patterns, foraging ranges, and habitat use of Marbled Murrelets in the Port Snettisham area of Southeast Alaska. They continued to focus on breeding behavior and identifying nesting habitat. They radio-marked 40 adult murrelets and tracked them using aerial flights, boat surveys, and data loggers. Fifteen tree and ground nests were located, two of which were 48 km inland in Canada. Both adults were marked at four of the nests, providing them with detailed information on incubation and chick feeding behavior. They also looked at the distribution of murrelets on the water in relation to forage fish schools, tides, time of day, and other factors. Field

support was provided by **Blake Barbaree**, **Trevor Haynes**, **Dan Cushing**, **Veronica Padula**, **Gillian Brooks**, with assistance during captures from **Kate Savage**, **Dan Roby**, **Zach Peery**, **Sean McAllister**, **Mary Rabe**, and **Anabell Deutschlander**. This project is funded by ADF&G.

The Alaska Department of Fish and Game (Matt Kirchhoff) convened a meeting to review the population status of the Marbled Murrelet and to help the department establish funding priorities for work on the species in Southeast Alaska. Researchers were invited from Alaska, British Columbia, and the contiguous U.S. states. The 2-day meeting was held at the USGS Marrowstone Marine Field Research Station in Nordland, Washington. In attendance were **John Piatt**, **Bill Ritchie**, Harry Carter, Kim Nelson, Kathy Kuletz, Zach Peery, Michelle Kissling, Kirchhoff, and Mary Rabe. Several other invitees were unable to attend.

The group heard presentations on the recently completed status assessment of Marbled Murrelets in Alaska and British Columbia (Piatt), and on research in south-central Alaska (Kuletz), California (Peery), and southeast Alaska (Nelson and Kirchhoff). Agreement was reached on a number of broad points. The similar magnitude of decline in these birds throughout their range implicates broad-scale causal factors. This suggests that climate-driven changes in the marine environment (e.g., regime shift, Pacific Decadal Oscillation) may be responsible. However, there also are perplexing differences across this wide latitudinal range. For example, new evidence points to capelin (*Mallotus villosus*) as a very important forage fish for Marbled Murrelets in Alaska, yet this fish is less abundant or even absent in the southern half of the bird's range. In the Pacific Northwest and British Columbia, where old-growth forest has been systematically eliminated, Marbled Murrelets tend to nest in trees, whereas in Alaska, where

old-growth forest is relatively intact (at least in our study areas), many birds are nesting on the ground. And reproduction (based on adult:juvenile ratios) ranges from very low at the southern end of the species' range to very good in the northern end. Such differences suggest that efforts to identify a common cause for range-wide declines may be misplaced. The group agreed on a laundry list of possible factors, including changes in forage fish resources, increased predation, and mortality from gill nets. But they were unable to reach consensus on a leading cause for the decline. Whatever the cause(s), the group agreed that steep the declines observed in Southeast Alaska suggest that adult survival is being affected.

Although Southeast Alaska supports the bulk of the global population of Marbled Murrelets, little funding has historically been devoted to research and monitoring there. The group recommended increasing this investment; goals should include monitoring population trends more precisely, developing a population estimate for the region, and discerning principal causes for the apparent decline. The group developed a prioritized list of research and monitoring activities for future agency funding, which was distributed to members of the Alaska-BC Working Group (a subgroup under the PSG Marbled Murrelet Technical Committee). Copies are available to others on request (matt_kirchhoff@alaska.gov).

OTHER PROJECTS

Dave Roseneau (AMNWR) coordinated collection of murre and gull eggs at colonies in AMNWR for the long-term Seabird Tissue Archival and Monitoring Project (STAMP) contaminants program. He also made arrangements to get murre and gull eggs from the Commander Islands, Russia.

Art Sowls (AMNWR) worked on revamping response planning for shipwreck "rat spills," since new Environmental Protection Agency

(EPA) approvals were obtained for the use of rodenticides.

Tuula Hollmen, Shiway Wang (both of the Alaska SeaLife Center) and **Sara Iverson** (Dalhousie University) received funding from the North Pacific Research Board (NPRB) to estimate diets of two species of threatened sea ducks, the Steller's and Spectacled Eiders. They will conduct a captive validation study on fatty acids that will provide the basis for characterization of dietary patterns, leading to further understanding of habitat requirements and how environmental changes in the marine ecosystem impact eider population health.

Scott Hatch (USGS) completed a long-anticipated web application for data entry into the Pacific Seabird Monitoring Database (accessible online at <http://seabirds.usgs.gov>). Scott also worked with **John Piatt** (USGS), **Alan Burger** (University of Victoria) and others to complete a comprehensive status review of the Marbled Murrelet in Alaska and British Columbia.

John Brewer (UAF) successfully defended his master's thesis and graduated in August. The title of his thesis is "Adrenal responsiveness of Black-legged Kittiwake chicks (*Rissa tridactyla*): interannual variation and the effects of nestling status, brood size and investigator disturbance."

Tom Van Pelt continued to run his one-person consultancy, Transboundary Ecologic LLC. He worked on contracts related to bird life and other natural resources in Bristol Bay, collaborated with scientists and refuge managers in the Russian Far East, and undertook other projects. Tom visited Japan in March, helping **Yasuaki Niizuma** run a workshop on surveying seabirds from coastal ferries. He was temporarily on the staff of Audubon Alaska for the latter half of 2007, working with a broad group of colleagues including **Heather Renner** and others at AMNWR to update the IBA program in the Bering Sea. Tom also helped Audubon get engaged with the North Pacific Fishery Management Council's Aleutian Island Fisheries Ecosystem Plan.

RUSSIA

Compiled by **Shiway Wang**

Falk Huettmann (UAF) and his Ecological Wildlife Habitat Analysis for the Land- and Seascape Laboratory (EWHALE) were busy in 2007. Besides the usual GIS modeling and worldwide metadata work, Falk was able to join various efforts for a steady-state economy, global change, and marine sustainability. He carried out avian influenza and related seabird work in the Russian Far East for a second year. Of interest were relatively high numbers of Long-billed Murrelets (*Brachyramphus perdix*), a Laysan Albatross (*Phoebastria immutabilis*) sighting at a coastal fishing net, and various quantified estimates of animal density at marine hotpots near the Vostochnya Wilderness Reserve on Sakhalin Island. In addition, the lower Amur River estuary was investigated, and some boat-based seabird surveys were carried out using DISTANCE Sampling; data will be available online. EWHALE lab students are now exploring arctic issues and conservation planning using MARXAN software, and are using related digital tools for assessing cumulative impacts and efficient spatial modeling (boosting and bagging). The lab made contributions to the Ocean Bioinformatics Conference and Arctic Ocean Diversity project with the Census of Marine Life. Members also organized several Data Sharing Round Tables and metadata workshops.

and an international team have been looking at the migration paths of Western Sandpipers from the Bay of Panama to Vancouver via radio-tracking. Other team members are **Ron Ydenberg** (CWE), **Eric Davies** and **Kim Mathot** (CWE graduates), **Tim Burr** (U.S. Navy, retired), **Maribel Tejada**, **Angel Sosa** and **Ovidio Jaramillo** (University of Panama), **Guillermo Fernandez**, **Miguel Guevarra** and **Luis Castillo** (Institute of Sciences, Mazatlán, Mexico), **Sherri Miller** (U.S. Forest Service, Arcata California) and **John Takekawa** (U.S. Geological Survey, San Francisco), plus numerous individuals from the Panama Audubon Society and the Smithsonian Tropical Research Institute. Baird et al. have proposed various hypotheses for an apparent decline in numbers of this species and are now testing them. Since one of the hypotheses is heavy metal contamination, they are collecting blood and feathers for analysis. Baird is also collaborating with **Zed Mason** of California State University, Long Beach, CA (where Baird is still affiliated) on this project.

In January 2007, **Louise Blight** began a PhD with **Amanda Vincent** at the University of British Columbia (UBC; Vancouver, BC). Blight will be using stable isotope analysis to examine long-term changes to marine food webs, using seabird predator-prey interactions as a model. In November and December 2006, Blight worked with **David Ainley** (HT Harvey and Associates, Los Gatos CA) on Adélie Penguin (*Pygoscelis adeliae*) demography at Ross Island, Antarctica.

Alan Burger of the University of Victoria (UVIC; Victoria, BC) is continuing research on Marbled Murrelets (*Brachyramphus marmoratus*) and other seabirds, mainly on Vancouver Island. Burger is analyzing existing data on the re-use of nest trees by Marbled Murrelets and investigating the development of potential platforms in coastal conifers, in collaboration with **David (Dov) Lank** and **Michael Silvergieter** (SFU), **Volker Bahn** (McGill University, Montreal), and **Cathy Conroy** and **Irene Manley**.

CANADA

Compiled by **Ken Morgan**

BRITISH COLUMBIA

Pat Baird has been conducting research on Western Sandpipers (*Calidris mauri*) through the Centre for Wildlife Ecology (CWE) at Simon Fraser University (SFU), Burnaby, British Columbia (BC). Over the past three years, Baird

Burger also worked with Lank, **Louise Waterhouse** (BC Ministry of Forests, Nanaimo, BC) and **Alvin Cober** of the BC Ministry of Environment, Queen Charlotte City, Queen Charlotte Islands (QCI; also known as Haida Gwaii) on the application of low-flying helicopter surveys to identify and analyze murrelet nesting habitat in several sites in the province. Previous work on Marbled Murrelets and their prey conducted off southwest Vancouver Island is being prepared for publication, in collaboration with UVIC PhD student **Rob Ronconi** and UVIC researchers **Nathan Hentze**, **Sarah Wong** and **Trevor Haynes**.

Tony Gaston of the Canadian Wildlife Service (CWS), Ottawa, Ontario (ON), **Akiko Shoji** (University of Ottawa; UO) and **Jennifer Provencher** (UO contractor) studied incubation behavior in Ancient Murrelets (*Synthliboramphus antiquus*) at Reef Island, Haida Gwaii in April-June, using birds occupying artificial nest boxes that were placed in 1997. In 2007, 82% of 72 surviving boxes were occupied. **Sophia Colantonio** (UO) studied predation on Ancient Murrelets at the same colony, including its effect on choice of breeding sites. Conditions for Ancient Murrelet reproduction at Reef Island in 2007 seem to have been excellent, with incubation shifts much shorter than those observed in the 1980s, which we assume is a sign of good feeding conditions. For most of the breeding season, Reef Island was surrounded by feeding humpback whales (*Megaptera novaeangliae*) and Pacific white-sided dolphins (*Lagenorhynchus obliquidens*), and extensive euphausiid swarms were sighted frequently. All in all, it appeared to be a bumper year for marine top predators in the area.

Anne Harfenist (Harfenist Environmental Consulting) completed the second year of a Leach's Storm-Petrel (*Oceanodroma leucorhoa*) survival study. The research is being conducted at two colonies in BC: Rock Islet (off eastern Moresby Island in Haida Gwaii) and Cleland Island (off southwestern Vancouver Island). The project is being supported by the Bulkley Valley Centre

for Natural Resources Research and Management.

Mark Hipfner (CWE/SFU and CWS) noted that the summer of 2007 marked the 14th year of operation of the CWE's seabird research and monitoring program on Triangle Island, BC. The 2007 field crew included **Phanie Bonneau** (student intern with Cegep de la Pocatière), **Rachel Darvill** (CWE contractor), **Johanna Havelaar** and **Glen Keddie** (CWE), **Sarah Jamieson** (SFU PhD candidate), **Lisa Pollock** (University of Guelph; UoG), **Kyle Morrison**, **Mark Sloan** (Yale University), and **Marjorie Sorenson** (UoG MSc candidate), in addition to Hipfner. As usual, the crew monitored breeding chronology and success, and related demographic parameters, in Cassin's Auklets (*Ptychoramphus aleuticus*), Rhinoceros Auklets (*Cerorhinca monocerata*), Tufted Puffins (*Fratercula cirrhata*), Common Murres (*Uria aalge*), Pelagic Cormorants (*Phalacrocorax pelagicus*), Black Oystercatchers (*Haematopus bachmani*), and Glaucous-winged Gulls (*Larus glaucescens*). Breeding success in 2007 was generally very poor for most species; of particular note, it was the least successful year in the 14-year data series for Rhinoceros Auklets.

Kyle Morrison is working on his MSc degree at SFU, examining survival, prospecting, and recruitment in Tufted Puffins at Triangle Island. His work is supervised by **Mark Hipfner** and **David Green** (SFU/CWE), with additional committee mentoring from **Pat Baird** and **Ron Ydenberg** (both SFU/CWE). Morrison plans to analyze juvenile and adult survival of Tufted Puffins, using a six-year dataset of resighted birds that were color-banded as chicks, as well as others that were color-banded as adults. His goal is to test a facet of the Public Information Hypothesis (that pre-breeding birds gather knowledge on breeding site quality while attending the colony, resulting in recruitment to a high quality site). Morrison assessed the burrow site quality of recruited puffins banded as chicks by measuring the density and site characteristics of surrounding burrows. However, measurement of reproductive success

in 2007 was impeded by mass chick mortality and colony abandonment; this phenomenon was related to food shortage and is not uncommon in Tufted Puffins at Triangle Island. Enquiries can be made to Morrison at kwmorris@sfu.ca

CWS continued with their seabird monitoring program in BC in 2007. **Moirá Lemon** (CWS, Delta, BC) led a crew consisting of contractors Keddie, Havelaar, and **Renaude Samson** in population surveys at the Ancient Murrelet and Cassin's Auklet colony on Ramsay Island, Haida Gwaii.

Heather Major (SFU/CWE) is continuing her PhD with **Mark Hipfner** and **Ron Ydenberg**, studying the recovery of Ancient Murrelets following the eradication of rats in the 1990s from Langara Island, BC. She completed her second field season on Langara with assistance from SFU contractors **Adam Chateauvert**, **Meghan McKillop**, and **Lunabelle Loiseau-Tremblay** in June.

Ken Morgan (CWS, Sidney, BC) is still investigating seabird ecology and at-sea distributional relationships with oceanographic and climatic variability in the North Pacific. He is collaborating with **Sonia Batten** (Sir Alister Hardy Foundation for Ocean Science, Nanaimo, BC), **Mike Bentley** (Victoria, BC), **Mike Henry** (Montreal, Québec [QC]), **David Hyrenbach** (UW and Duke University Marine Lab, Beaufort, North Carolina), and **Bill Sydeman** of the Farallon Institute for Advanced Ecosystems Research, Petaluma, CA. Morgan continues working on a project to track Pink-footed Shearwaters (*Puffinus creatopus*) from their Chilean colonies into North American waters. Collaborators were Hyrenbach and Peter Hodum; support was provided by the Commission for Environmental Cooperation and the National Oceanic and Atmospheric Administration (NOAA). Morgan also collaborated on a project to place observers on Canadian Coast Guard vessels to conduct at-sea surveys of seabirds and mammals along Canada's three maritime coasts. He worked with **Carina Gjerdum** of CWS, Dartmouth, Nova Scotia (NS) and **Ed Carmack** (DFO, Sidney,

BC), along with invaluable assistance from **George Hunt** (UW), **Martin Renner** (post-doc at UW) and **Kathy Kuletz** (U.S. Fish and Wildlife Service, Anchorage, Alaska). In July and August, **Mike Bentley** surveyed between Victoria and Kugluktuk, Nunavut (NU); and **John Wells** surveyed between Dartmouth, NS and Kugluktuk. From late September to mid-October, Renner surveyed the south-bound western leg from Cambridge Bay, NU to Dutch Harbor, Alaska.

Rob Ronconi (UVIC) continues to work on his PhD thesis on Marbled Murrelet marine habitat selection, under Alan Burger. The thesis will be completed in early 2008. Ronconi also worked in the Bay of Fundy (see the section on Central and Eastern Canada).

Douglas Bertram is focused on long-term monitoring of Marbled Murrelet populations in British Columbia. He contracted **Bernard Schroeder** in 2007 to conduct radar surveys at long-term stations on Haida Gwaii (Queen Charlotte Islands) and the West Coast of Vancouver Island Conservation Regions. Bertram is working with **Michael Janssen** and **Ryan Norris** (Guelph) and **Peter Arcese** (UBC) to examine trophic feeding level in Marbled Murrelet, using stable isotopes.

Kristin Charleton is working on gillnet bycatch with Environment Canada and Fisheries and Oceans Canada supported primarily by the Canadian Interdepartmental Recovery Fund. The Seabird Recovery Project has had a continued presence throughout commercial gillnet fisheries in BC, including the north coast during the chum salmon (*O. keta*) season in fall.

In December, **Falk Huettmann** (University of Alaska, Fairbanks) conducted boat-based Marbled Murrelet surveys for the fifth year near Tofino, BC.

CENTRAL AND EASTERN CANADA

Andrew Boyne of CWS, Dartmouth, Nova Scotia (NS) monitored Roseate Terns (*Sterna dougallii*) at two colonies in NS in 2007. Brothers Island (off the southwestern shore of NS) has

supported a breeding population of Roseate Terns for many years. The island is monitored and protected by a local steward (**Ted D'Eon**) who monitors for predators and other threats. Each year CWS counts and bands all chicks. In 2007, Boyne, and **Julie McKnight** and **Brad Toms** (of CWS) banded 34 tern chicks at Brothers Island, is the highest number of chicks ever banded there.

CWS, in conjunction with the NS Department of Natural Resources (NSDNR), Dalhousie University (DAL, Halifax, NS), and the Canadian Roseate Tern Recovery Team, initiated the Country Island Tern Restoration Plan in 1998. The project was launched in response to the findings that the mixed colony of terns on Country Island (eastern NS) was threatened by high levels of predation from gulls and corvids. This was particularly important because in 1996, approximately one third of the Roseate Terns breeding in Canada nested on Country Island. Predators on the island have been suppressed since 1997 by a crew of researchers that lives on the island from May to August. According to Boyne, 2007 was a "seemingly normal year in terms of colony size." A preliminary estimate by the CWS research crew places the colony size at 1069 nests this year. However, Boyne speculates that fledging success and productivity were low this year.

Pam Mills (NSDNR) surveyed all of NS in 2007 for terns by air, and the CWS crew conducted ground surveys to correct aerial estimates. They found 78 tern colonies with an estimated total of 5125 terns. Species ratios have not yet been calculated, but Roseate Terns were only found at three sites—the two colonies mentioned above, and another with only a single pair. Boyne noted that although there was an increase in the number of colonies in NS, the average colony size diminished, as did the total population. These surveys began in 1995 and are conducted every four years.

Surveys were also conducted on Sable Island, NS (290 km southeast of Halifax), by the Sable Island Preservation Trust (**Rick Welsford** and **Julia Lawson**) and DAL (**Andy Horn** and

Katherine Dillon), where they confirmed the presence of nesting Roseate Terns for the first time in almost 10 years. Several nests were identified and chicks were confirmed, although fledging success was not calculated.

A CWS crew consisting of **Toms, Rosalind Ford, Jeanette Goulet, Paul Harris** and **Peter Thomas** conducted aerial and boat surveys of terns and other colonial seabirds in Newfoundland (NL) in 2007. Numbers of terns appeared to be slightly reduced from comparable surveys in 2002. This was year three of a three-year survey of insular NL.

Tony Diamond of the Atlantic Cooperative Wildlife Ecology Research Network (ACWERN) at the University of New Brunswick (UNB), Fredericton, New Brunswick (NB) reported that long-term research on diet and demographics of seabirds breeding on Machias Seal Island (MSI) in the Bay of Fundy continued in 2007. They banded and resighted Atlantic Puffins (*Fratercula arctica*) and Razorbills (*Alca torda*), monitored productivity in marked burrows, and recorded diet, as they have since 1994. The summary for 2006 available online (<http://www.unb.ca/acwern/documents/MSIReport2006.pdf>). The most significant recent event was the abandonment of MSI by nesting terns in 2006. This was the largest colony of Arctic Terns (*Sterna paradisaea*) in North America (~2000 pairs), and the largest tern colony in the Gulf of Maine/Bay of Fundy (~3000 pairs, including Common Terns [*Sterna hirundo*]). The colony had persisted through the vicissitudes of human predation in the 19th and 20th centuries. The terns abandoned again in 2007, after laying very few eggs and not attempting to incubate. Multiple causes seem to be operating, including poor food supply (following disappearance of juvenile herring from the diet in 2000), increased gull predation, and low productivity in 2004 and 2005 coincident with bad weather shortly after hatch. Bad weather for chicks could not be blamed in 2006 or 2007, because the terns did not stay long enough to experience it. Atlantic Puffins on MSI did reasonably well despite a

diet dominated by larval fish. However, Razorbills, which until 2007 were able to find juvenile herring when other seabirds could not, had their worst year since 1994 on a diet of larval fish.

Diamond is supervising the following student projects at UNB: **Kate Devlin's** PhD on Arctic Tern demographics, using field-readable bands that were applied and resighted on MSI and by collaborators at nearby colonies; the bands will allow them to track the dispersal of MSI's Arctic Terns among neighboring colonies. **Travis Clarke** continued his MSc on Razorbill movements, with re-sighting on MSI of three of the birds implanted with satellite transmitters in June 2006 but from which no signals had been received since November. He also recovered a the geolocator tag fitted in 2006 and is analyzing its data. Clarke and collaborators fitted 15 breeding Razorbills with band-mounted VHF radios in 2007, on MSI, the Gannet Islands (Labrador), and the Corossol Islands in Québec (QC). He plans to carry out aerial and ground searches for the tags around Grand Manan Island to test the hypothesis that Razorbills from all major North American colonies spend at least some time there during winter. **Alex Bond** has completed his MSc on mercury in the MSI seabird community, and has started a PhD under Ian Jones at Memorial University of Newfoundland (MUN), St. John's. **Kelly Boadway** has begun her MSc on Arctic Tern breeding biology in the high Arctic (in collaboration with Mark Mallory, CWS). **Robin Hunnewell** has begun a PhD on Red-necked Phalaropes (*Phalaropus lobatus*) staging in the Bay of Fundy, in collaboration with Manomet Center for Conservation Science and USFWS.

Gail Fraser of York University (YU), Toronto, **G. Robertson** of CWS, St. John's, Newfoundland (NL), and **J. Russell** and **R. Bryant** (Alder Institute) continued monitoring Manx Shearwaters (*Puffinus puffinus*) and Leach's Storm-Petrels (*Oceanodroma leucorhoa*) on Middle Lawn Island, NL. **D. Andrews** (YU) conducted another field season of MSc research on the

foraging ecology of Double-crested Cormorants (*Phalacrocorax auritus*) at a large colony (>7000 pairs). Fraser and Andrews had enthusiastic assistance from **C. Weseloh** (CWS, Burlington, ON) with dawn counts of foraging cormorants. Also under Fraser, **K. Khan** examined the impacts of Raccoon (*Procyon lotor*) predation at a Black-crowned Night Heron (*Nycticorax nycticorax*) colony, and **S. Lakford** initiated an MSc project on the breeding biology of Common Terns. The student projects took place at Tommy Thompson Park (Leslie Street Spit), a man-made peninsula that extends into Lake Ontario.

Jean-François Rail and **Richard Cotter** of CWS, QC surveyed the seabird colonies of the Magdalen Islands, QC, in the middle of the Gulf of St. Lawrence. Preliminary results for 2000–2007 are that Herring Gulls (*Larus argentatus*) and Atlantic Puffins suffered large declines (–57% and –77%, respectively), whereas the Double-crested Cormorant population increased from less than 1000 pairs to over 2500. Numbers for 11 other breeding seabird species were more stable. Several colonies were deserted, presumably because of Red Foxes (*Vulpes vulpes*) and human disturbance. They were assisted by **Dominic Cyr** and **Isabelle Turbide** (Parks Canada).

Rail and **Philip Bertrand** of the Collège d'enseignement général et professionnel de La Pocatière (La Pocatière, QC), attached GPS and altimeter loggers on incubating Northern Gannets (*Sula bassana*) at Bonaventure Island, QC. They again collaborated with **Stefan Garthe** (Universität Kiel, Germany) and **Bill Montevecchi** (MUN).

As part of the State of the St. Lawrence Monitoring Program, **Raphaël Lavoie** (CWS, QC), assisted by Bertrand and supervised by Rail, spent his third summer on Corossol Island monitoring productivity, diet and chick growth in Black-legged Kittiwakes (*Rissa tridactyla*) and Razorbills, as well as diet of Double-crested Cormorants. It was (finally) a relatively good year for the kittiwakes, with most chicks fledging. The proportion of capelin (*Mallotus villosus*)

in their diet was higher in 2007 than in 2005 or 2006. In contrast, capelin disappeared early (beginning of July) from the diet of the inshore-foraging Double-crested Cormorants. The cormorants and Razorbills apparently could rely on other prey species, especially American Sand lance (*Ammodytes americanus*), which remained abundant throughout the season. Lavoie also completed fieldwork (sampling of seabirds, invertebrates and water) for his MSc at UO with **David Lean**. He is studying the distribution of mercury through the marine food web to colonial seabirds at Corossol Island.

In the Bay of Fundy (Atlantic Canada), **Rob Ronconi** collaborators continued their 3rd field season exploring the diets, movements, use of tidal upwellings, and migration of Greater Shearwaters (*Puffinus gravis*) and Sooty Shearwaters (*Puffinus griseus*). New in 2007 was the satellite tagging of two Sooty Shearwaters, and the recapture of a Greater Shearwater that was originally banded in 2006. Collaborators were **Heather Koopman**, **Aleksija Neimanis**, **Andrew Westgate**, **Sarah Wong** (Grand Manan Whale and Seabird Research Station).

Greg Robertson (CWS, St. John's, NL) reported an unusual outbreak of avian cholera far offshore among gulls and other seabirds. This was confirmed by **Hugh Whitney** (NL Department of Natural Resources, St. John's) and **Scott McBurney** (Atlantic Veterinary College, University of Prince Edward Island, Charlottetown). Reports of dead and dying gulls from offshore oil rigs and fisheries patrols occurred in late 2006 and by early 2007 they reached numbers posing risks to helicopter traffic. Cholera was seen in a few gulls on shore in the following weeks, and by March, it had run its course. In April a wreck of a few hundred juvenile Thick-billed Murres (*Uria lomvia*) occurred in Conception Bay (NL); they apparently had starved. The spring of 2007 was late, and pack ice remained offshore well in to April and May. In summer Robertson focused on monitoring Common Murres. Close to 2000 murre chicks were banded in the

province, and geologists were attached to 5 breeding murres in Witless Bay (NL), in collaboration with Bill Montevocchi. Fisheries bycatch of Common Murres around major colonies was again noted in 2007. In general, productivity of seabirds was low to moderate, and highly variable, in NL in 2007.

Christopher Somers of the University of Regina, Regina, Saskatchewan (SK) has an ongoing research program on aquatic colonial birds in SK, focusing on Double-crested Cormorants, American White Pelicans (*Pelecanus erythrorhynchos*) and Western Grebes (*Aechmophorus occidentalis*). The main objectives are to (1) determine the degree of habitat overlap between piscivorous colonial birds and recreational boaters, (2) identify prey in the diet of cormorants and pelicans to evaluate their potential impact on fish populations, (3) characterize trophic position and food web interactions of piscivorous birds using stable isotopes, (4) examine inter-specific agonistic interactions among nesting birds in breeding colonies, (5) examine patterns of juvenile dispersal, and (6) evaluate population trends. Somers recently initiated a population genetics study to examine relationships among breeding colonies and the distribution of genetic diversity among American White Pelicans in North America. He is also studying disease in waterbird colonies, in collaboration with EC wildlife veterinarians (**Catherine Soos** and **Emily Jenkins**, Saskatoon, SK) and **Ted Leighton** of the Canadian Cooperative Wildlife Health Centre (University of Saskatchewan, Saskatoon). Projects included (1) the relationship between diet and gastrointestinal parasite infestation in cormorants, (2) geographic variance in common causes of mortality and disease in bird colonies, (3) rates of West Nile Virus exposure and mortality among colonial species, and (4) monitoring of epidemic disease outbreaks in SK colonies. Monitoring of the Double-crested Cormorant colony at Dore Lake, SK for epizootic disease continued in 2007 for the 14th consecutive year. In August an epidemic of avian cholera (*Pasteurella*

multocida) killed over 1000 fully-grown hatch-year birds and smaller numbers of adult cormorants, gulls, sandpipers, ducks, and ravens. The 2007 monitoring was carried out by Somers, Leighton, and **Thijs Kuiken** and **Josanne Verhagen** (Institute of Virology, Erasmus Medical Centre, Erasmus University, Rotterdam, Netherlands). Interested parties can contact Somers at Chris.Somers@uregina.ca

ARCTIC CANADA

Kyle Elliott of the University of Manitoba (UM) and **Tony Gaston**, **Kerry Woo**, and **Jennifer Provencher** (CWS) returned to the Thick-billed Murre colony on Coats Island, Nunavut (NU), from 13 July to 16 August. Ice was seen sporadically until nearly the end of July, and the median hatch date was several days later than in recent years (before 2000). As would be expected with more ice, Arctic cod (*Boreogadus saiga*) was about 30% of the diet, an increase over recent years. As part of an International Polar Year project to examine adult diet, birds were collected for stomach contents analysis and blood was sampled for stable isotope analysis. Public education had a high profile at Coats Island this year, with visits from a "Cruise North" expedition, a "Students on Ice" expedition, and **Peter Mansbridge** of the Canadian Broadcasting Corporation. The television crew also visited and filmed seabirds at Prince Leopold Island, Nunavut, so seabirds got good exposure from the Canadian media this year.

In August, Gaston, **Jason Akearok** (CWS, Iqaluit, NU) and **Garry Donaldson** (CWS, Gatineau, QC) visited the little-known Thick-billed Murre colony at Akpait (the Minarets) on Baffin Island. Time-depth recorder information and stomach contents were collected for comparison with other colonies in the Eastern Canadian Arctic and with similar collections that were made in the 1970s and 1980s.

In 2007, **Mark Mallory**, **Siu-Ling Han**, **Jason Akearok** and **Alain Fontaine** (all CWS, Iqaluit, NU) and **Kelly Boadway** (UNB, ACWERN) initiated

studies reactions to disturbance by breeding Ross's Gulls (*Rhodostethia rosea*), in order to define critical habitat under Canada's Species at Risk Act (SARA). All five undertook investigations to compare the breeding biology of Ross's Gulls with that of sympatric Sabine's Gulls (*Xema sabini*) and Arctic Terns. Mallory, Han, Akearok, and Fontaine also continued monitoring colony attendance and reproduction by breeding Ivory Gulls (*Pagophila eburnea*). Counts of this species were very low at Seymour Island, NU, but all eggs tested were found to be viable.

OTHER PROJECTS

Pat O'Hara (CWS, Sidney BC) is the principal scientist for Environment Canada's (EC) Birds Oiled at Sea (BOAS) program on the Pacific coast. The main goal is to estimate potential impacts of ship-source oil pollution on seabirds. O'Hara is mapping and modeling at-sea seabird distributions and oil spill hot spots to estimate exposure risk for certain species of seabird. Oceanographic information is coupled with survey data to help fill gaps in at-sea seabird surveys. Shipping data and surveillance from aircraft and satellites are used to define and predict patterns for ship-source pollution. This modeling is done in collaboration with many partners, including Marine Communications and Traffic Services (Canadian Coast Guard), National Aerial Surveillance Program (Transport Canada), DFO, Integrated Satellite Tracking of Polluters (EC and the Canadian Space Agency), Parks Canada, the UVIC Department of Geography, the University of Calgary, and Dalhousie University. O'Hara is also working with several environmental non-governmental organizations, including Bird Studies Canada, the Coastal Observational and Survey Team, the Farallones Marine Sanctuary Association, World Wildlife Fund, and the Canadian Parks and Wilderness Society.

Ken Morgan worked for much of 2007 on Canada's Recovery Strategy for the Pink-footed Shearwater and the Short-tailed Albatross (*Phoebastria albatrus*).

Both species are listed as Threatened under SARA. Morgan chaired the Recovery Team; other members were **Louise Blight**, **Myke Chutter** (BC Ministry of Environment, Victoria), **Peter Hodum** (Oikonus Ecosystem Knowledge and UW), **Tamee Mawani** (Fisheries and Oceans Canada [DFO], Vancouver), **Nadine Parker** (Transport Canada, Vancouver), **Jo Smith** (UW), and **Ross Vennesland** (Parks Canada Agency, Vancouver). **David Cunningham**, **Lucy Reiss** and **Emily Chamberlain** (all of CWS, Delta, BC) provided invaluable assistance throughout the development of the Recovery Strategy and the consultation plan. The team anticipates that the Recovery Strategy will soon be posted on the SARA Public Registry for the 60-day comment period.

In 2006, **Jamie Kenyon** of CWS (now with Ducks Unlimited Canada, Whitehorse, Yukon Territory) and others at CWS assembled all existing pelagic data collected between 1982 and 2005, within and adjacent to Canada's west coast Exclusive Economic Zone (EEZ), and produced maps and text for an updated Atlas of Pelagic Birds of Western Canada. When Kenyon left CWS, Morgan took on the role of finishing the document; the plan is to publish the Atlas early in 2008.

Vasiliki Karpouzi (PhD candidate, UBC) worked on three projects involving seabirds. (1) She compiled information on growth patterns in seabird chicks (137 species in 13 families and four orders); she then considered growth functions and converted logistic and Gompertz growth curves to von Bertalanffy curves. She also investigated differences in growth patterns within seabird orders, and between seabirds and other groups of organisms (e.g., fishes). Growth spaces occupied by the four seabird orders reflected differences in the seabirds' breeding biology. This work is available in SeaLifeBase (www.sealifebase.org), a searchable electronic database of biological information for all marine organisms in the world. (2) Karpouzi has been compiling information on diet composition of chicks and

adults of seabird species worldwide, to estimate trophic levels of seabirds and their role in the marine food web. She has also been looking at feeding habits of seabird chicks in conjunction with their growth patterns and energy requirements to determine the global amount of food extracted annually by adult seabirds for chick growth. Once completed, this work will also be available in SeaLifeBase. (3) Karpouzi attempted to rank 55 coastal countries on their conservation and management efforts for seabirds breeding within their Exclusive Economic Zones. She considered: (1) conventions and agreements, to assess the countries' intention to engage in conservation actions; (2) trends of seabird populations, to evaluate the countries' performance on integrating conservation into national action plans; and (3) availability and quality of seabird population data. This is an ongoing effort to improve knowledge of seabird population status and of countries' actions to conserve marine biodiversity. The same analysis is also underway for other taxa (e.g., marine mammals, sea turtles), biomes, and other aspects of biodiversity.

WASHINGTON AND OREGON

Compiled by **Don Lyons**

MARBLED MURRELETS

The status and trends of Marbled Murrelet (*Brachyramphus marmoratus*) populations and nesting habitat are monitored as part of an interagency program to evaluate the effectiveness of the Northwest Forest Plan (NWF Plan). The Marbled Murrelet Effectiveness Monitoring Program has monitored murrelet populations annually from boats since 2000, covering about 8800 km² of coastal waters throughout murrelet conservation Zones 1 through 5 (US–Canada border to San Francisco Bay). As in past years, surveys were conducted in 2007 through

the collective effort of the Population Monitoring Team. Washington surveys were led by **Marty Raphael** and **Tom Bloxton** of the U.S. Forest Service—Pacific Northwest Research Station (PNW) in Zone 1 (Puget Sound through the Strait of Juan de Fuca), and by **Scott Pearson** and **Monique Lance** of Washington Department of Fish and Wildlife (WDFW) in Zone 2 (outer coast). In Oregon (Zone 3 and part of Zone 4), surveys were led by **Craig Strong** (Crescent Coastal Research) In California, **Sherri Miller** and others of the U.S. Forest Service—Pacific Southwest Research Station (PSW) led surveys in Zone 4 (Coos Bay, Oregon south through Humboldt County, California), and Strong led surveys in Zone 5 (Mendocino through Marin Counties). Annual population estimates for the 5-zone area have ranged from about 18,600 to 23,700 murrelets (95% confidence limits 13,400–29,000 birds). Population estimates for 2007 will be available soon, after which we will evaluate population trends for the 5-zone area using the eight years of population monitoring data (2000–2007). Population surveys will continue in 2008.

The Habitat Monitoring Team (including **Marty Raphael**, **Kim Nelson** (Oregon State University), **Sherri Miller**, **Jim Baldwin** (PSW) and **Rich Young** of the U.S. Fish and Wildlife Service (USFWS) are continuing to model murrelet habitat relationships across the 5 conservation zones, for an upcoming assessment of murrelet nesting habitat through the first 15 years of the NWF Plan (1993–2008).

Other contributors to the monitoring program included **CJ Ralph** (PSW), **Beth Galleher** (PNW), and **Mark Huff** (National Park Service), plus the many seasonal technicians who made the population surveys possible. In September 2006, **Gary Falxa** (USFWS, Arcata, California) took over lead for the NWF Plan's murrelet monitoring program from Mark Huff. A report on results of the monitoring program through 2003 is available at http://www.fs.fed.us/pnw/pubs/pnw_gtr650.pdf; a recent publication on the population survey

protocol is at http://www.fs.fed.us/pnw/pubs/pnw_gtr716.pdf

Martin Raphael and **Tom Bloxton** continued collaborative studies on Marbled Murrelets in Puget Sound, Strait of Juan de Fuca, and Hood Canal during 2007. As mentioned above, Raphael and Bloxton surveyed murrelets and other seabirds in Washington's inner marine waters. They also continued collecting baseline data on within-season and annual changes in distributions, densities, and productivity indices of murrelets in the San Juan Islands. The fourth season of capturing and radio-tagging murrelets at sea around the Olympic Peninsula yielded 32 tagged adults, including the first recapture of a murrelet that was banded in this study (in 2005). Five nests were located, including the first known cliff nest in Washington. All five nests failed. This work was completed with support and cooperation from **Richard Bigley** of the Washington Department of Natural Resources, **Deanna Lynch** of the USFWS, and **John Calhoun** of the Olympic Natural Resources Center.

The Oregon Department of Forestry (ODF) contracted Turnstone Environmental Consultants to conduct Marbled Murrelet surveys on state lands in the Coast Range of Oregon in 6 ODF districts (Astoria, Tillamook, Forest Grove, Western Lane, Coos Bay and West Oregon). Surveyors visited a mixture of first-, second-, and multi-year sites, and conducted almost 1700 surveys at 212 unique sites and 909 unique stations. Murrelets were present during 112 surveys and occupied behavior was observed during 16 surveys. All surveys were conducted according to PSG's protocol requirements. **Tom Williamson** was the Turnstone project manager. District representatives for ODF were **Jenny Laughman** Astoria, **Kate Skinner** in Tillamook, **Laurie O'Nion** in Forest Grove, **Tom Mickel** in Western Lane, **Ryan Greco** in Coos Bay and **Dan McMinds** in West Oregon. **Matt Gostin** was the ODF contract administrator and primary contact.

Turnstone also completed a 2-year contract to survey Marbled Murrelets for

the Washington Department of Natural Resources (WDNR) in the western foothills of the northern Cascade Range. They conducted intensive surveys for Marbled Murrelets in accordance with PSG's 2004 Marbled Murrelet Survey Protocol, in support of WDNR's habitat conservation process on state forest lands. Surveyors at first-, second-, and multi-year stands conducted over 300 surveys at 52 sites. Murrelets were present at six sites and one site yielded an "occupied" detection. An additional 54 non-PSG protocol surveys were conducted at six "high-elevation" sites in an effort to test potential new survey techniques for sites above 915 m. **Jeff Reams** was the Turnstone project manager. Biologists **Terry Carten**, **Andrew Norton** and **Peter McBride** served as WDNR's district representatives. Terry Carten, replaced in mid-season by Andrew Norton, was the WDNR contract administrator and primary contact.

Turnstone biologists began a 2-year contract for the City of Cannon Beach, Oregon, for intensive surveys for Marbled Murrelets in accordance with PSG's survey protocol. The project is part of an impact assessment for future development adjacent to the city's wastewater treatment facility. Five surveys were performed at one site. **Tom Williamson** was the project manager; **Rainmar Bartl** served as the city representative. Turnstone also conducted Marbled Murrelet surveys for the SE Group (Bellevue, WA), as part of the impact assessment for a proposed expansion of the Snoqualmie Pass ski area. Forty surveys were conducted at eight sites. No Marbled Murrelets were detected. **Jeff Reams** was the project manager; **Dan Roscoe** was the SE Group representative.

Kim Nelson (Oregon State University, Wildlife Trust) and **Scott Newman** (Wildlife Trust, Food and Agriculture Organization) continued their 3-year study with **Darrell Whitworth**, **Harry Carter**, and **Matt Kirchhoff** on the health, activity patterns, foraging ranges, and habitat use of Marbled Murrelets in the Port Snettisham area of Southeast

Alaska (see Alaska regional report for details).

CASPIAN TERNS

Oregon State University, the U.S. Geological Survey (USGS)–Oregon Cooperative Fish and Wildlife Research Unit (OCFWRU), and their cooperators continued to investigate predation by seabirds on salmon smolts (*Oncorhynchus* spp) in the lower Columbia River. Studies included the size and productivity of the largest known breeding colony of Caspian Terns (*Hydroprogne caspia*) on East Sand Island in the Columbia River estuary. This colony is being managed by a group of federal, state, and tribal resource management agencies. Studies on East Sand Island also included the size and productivity of the largest known colony of Double-crested Cormorants (*Phalacrocorax auritus*).

Seabirds, including Caspian Terns, Double-crested Cormorants, Western/Glaucous-winged Gulls (*Larus occidentalis* X *glaucescens*), California Gulls (*L. californicus*), and American White Pelicans (*Pelecanus erythrorhynchos*), prey on juvenile salmonids in the lower Columbia River and estuary. Some of these fish are listed under the U.S. Endangered Species Act (ESA), and therefore agencies are required to take measures to improve salmonid survival in the river. One focus has been to relocate the principal breeding colony of Caspian Terns in the estuary, with the aim of reducing tern predation on the fish. The tern colony was induced to move from its former site on Rice Island to an artificially improved site 21 km closer to the ocean on East Sand Island. All Caspian Terns nesting in the Columbia River estuary have used East Sand Island since 2001.

In 2007, the size of the Caspian Tern colony on East Sand Island was approximately 9850 pairs (compared to approximately 9200 pairs in 2006). About 2.6 ha of nesting habitat were prepared for the terns on East Sand Island prior to the 2007 nesting season, and terns utilized approximately 1.4 ha for nesting, less than the 1.6–1.9 ha used in 2002–2006. Juvenile salmonids

comprised 31% of the diet of terns at the East Sand Island colony in 2007, similar to 2006. Northern anchovy (*Engraulis mordax*) and surfperch (Embiotocidae) were the most prevalent prey in the non-salmonid portion of tern diets.

The size of the Double-crested Cormorant colony on East Sand Island in 2007 was approximately 13,770 nesting pairs, compared to approximately 13,740 pairs in 2006. Thus there was no significant change in the size of the colony since 2006, although it has increased dramatically since it was first noted 20 years ago. An unusually virulent outbreak of Newcastle disease caused significant mortality among fledgling cormorants in 2007.

East Sand Island continues to be the largest known post-breeding roost site for California Brown Pelicans (*Pelecanus occidentalis californicus*). Upwards of 7500 Brown Pelicans were counted on the island in early to mid-September.

Much farther upriver, near the confluence of the Snake and Columbia rivers in eastern Washington, the Caspian Tern colony on Crescent Island was estimated at approximately 355 nesting pairs in 2007, down from 450 in 2006. This is the third straight year the colony has declined in size. This colony remains, however, the largest Caspian Tern colony in the Columbia Plateau Region and the third largest in the Pacific Northwest, after those at East Sand Island, Oregon and at Dungeness Spit, Washington. About 241 fledglings were produced this year, corresponding to a nesting success of 0.68 young raised per nesting pair, the second-highest productivity estimated at the Crescent Island tern colony since 2000. Juvenile salmonids comprised 67% of the diet of terns in 2007, similar to diet composition during 2000–2006.

Foundation Island, located 9 km upriver of Crescent Island, has the largest Double-crested Cormorant colony on the mid-Columbia River. Nests are in trees at this colony, which had at least 334 nesting pairs in 2007, down from about 360 in 2006. The largest Double-crested Cormorant colony in the Columbia Plateau Region, however, is on Potholes

Reservoir, where about 1015 pairs nested in trees at the north end of the reservoir in 2007, compared to approximately 1160 pairs in 2006.

Participants in the study included Oregon State University (OSU), Real Time Research (RTR), USGS, and the interagency Caspian Tern Working Group (CTWG), which includes the National Marine Fisheries Service (NMFS), U.S. Army Corps of Engineers, USFWS, Oregon Department of Fish and Wildlife, WDFW, Idaho Department of Fish and Game, Columbia River Inter-Tribal Fish Commission, and others. This year's research team included **Dan Roby** (USGS/OSU), **Jessica Adkins**, **Lindsay Adrean**, **Nathan Hostetter**, **Don Lyons**, **Lauren Reinalda**, and **Yasuko Suzuki** (OSU), **Ken Collis**, **Allen Evans**, and **Mike Hawbecker** (RTR), and a number of seasonal technicians and volunteers. This study was funded by the Bonneville Power Administration, the Northwest Power and Conservation Council, and the U.S. Army Corps of Engineers. See www.columbiabirdresearch.org for more information.

OSU, USGS–OCFWRU, and their cooperators also continued research and monitoring of Caspian Tern colonies in coastal Washington; however, observations were limited compared to previous years. We made bimonthly visits to a colony on Dungeness Spit, in Dungeness National Wildlife Refuge on the Strait of Juan de Fuca. This colony evidently formed for the first time in 2003, and is located on sandy substrate amongst driftwood about one km southwest of the Dungeness Lighthouse National Historic Site. Approximately 1150 breeding pairs nested in 2007, a 31% increase compared to 2006. This is now the second-largest Caspian Tern colony in the Pacific Northwest, after East Sand Island. The only other known colony in coastal Washington during 2007 was on a warehouse rooftop in the Bremerton Naval Shipyard. Up to 900 Caspian Terns were counted there in late May by U.S. Department of Agriculture Wildlife Services. By mid-June the Bremerton colony had largely failed, and only 117

breeding pairs remained with 31 chicks. This colony evidently formed for the first time in 2004 and has consistently had poor success. Participants in the study included OSU, USGS, and RTR. This year's research team included Dan Roby (OSU/USGS), **Sarah Moculeski**, Jessica Adkins, and **Kirsten Bixler** (OSU), and Ken Collis (RTR). The study was funded by USFWS.

OTHER PROJECTS—WASHINGTON

Joe Evenson, **Bryan Murphie**, **Tom Cyra**, and **David Nysewander** are continuing low-level aerial surveys during winter 2007–2008. The surveys have been conducted since 1992 throughout inner marine waters of Washington State (WA), as part of the Puget Sound Assessment and Monitoring Program (PSAMP) of WDFW. Maps of density indices for selected species and other products are available for 1992–2006 winter surveys and 1992–1999 summer surveys at <http://wdfw.wa.gov/mapping/psamp>, or by contacting the Wildlife Resources Data Section of WDFW, Olympia.

Research on Surf (*Melanitta perspicillata*) and White-winged (*Melanitta fusca*) Scoter has been conducted since 2003. Implantation of 72 satellite and 90 VHF radio transmitters has revealed new insights into breeding, wintering, spring staging, migration, and molting, and other strategies employed by these scoters. Follow-up studies have examined harvest, mortality and recruitment. Some results of this work can be viewed online (<http://wdfw.wa.gov/wlm/psamp/scoters/index.htm>). WDFW and collaborators will present some findings from this work at the 3rd North American Sea Duck Conference in November 2008.

A capture feasibility study was conducted in September 2007 using specially modified gill nets, to determine effort-to-success ratios for banding of scoters during molt. WDFW will also be implementing a sex/age ratio study on scoters and Harlequin Ducks (*Histrionicus histrionicus*) in February 2008 to examine hatch-year recruitment.

The PSAMP crew collaborated with Sea Doc Society and the University

of California at Davis in the capture of a small number of Western Grebes (*Aechmophorus occidentalis*) in March 2007, using the same type of specially modified gill nets. Veterinarians from the USGS (Alaska) and the university helped develop new methods and implantation protocols to improve the success of telemetry with these grebes.

Tom Cyra and **Joe Evenson** conducted censuses of Glaucous-winged Gulls during the nesting period in early June 2007 throughout the inner marine waters of WA, using aerial photography. The effort was a collaboration of WDFW and Migratory Bird Management, USFWS, Portland. This was the first coordinated survey since the late 1970s of breeding Glaucous-winged Gulls in the inner marine waters. The work was prompted by an apparent decline in the species over the last 25 years.

Other continuing seabird projects of WDFW include one on Black Oystercatchers (*Haematopus bachmani*), and replication of breeding surveys for Pigeon Guillemots (*Cepphus columba*) throughout the inner marine waters of WA. Questions can be directed to Joe Evenson at (360) 902-8137, Dave Nysewander at (360) 902-8134, Ruth Milner at (360) 466-4345 extension 265, or Tom Cyra at (425) 379-2307.

Eric Anderson's field studies of Surf and White-winged Scoters in Washington focus on identifying marine resources that are critical to regulation of stored body reserves. Anderson is in **Jim Lovvorn's** research group at the University of Wyoming. The importance of clams and mussels relative to other foods has likely been overestimated by past studies. When identifying critical feeding areas for protection, especially for Surf Scoters, the availability of soft-bodied foods such as polychaetes and crustaceans should also be considered. Important feeding areas for Surf Scoters in Puget Sound often change from early winter to spring, indicating need for a complex of seasonal habitats. For example, Surf Scoters aggregate in dramatic numbers to consume the spawn of Pacific herring (*Clupea pallasii*), which likely

compensates for overwinter declines in other foods and helps fuel migration. Abundant invertebrate foods supported by eelgrass in Padilla Bay are used by about 10,000 Surf Scoters before and during spring migration, and again during the molting period in late summer.

Lee Robinson completed her 14th season working with a small colony of pigeon guillemots on Protection Island NWR, in the Strait of Juan de Fuca, WA. This past season saw a fledging success of 36.5%. This is the sixth decline in the past 7 seasons, from a high of 68.3% in 2000. Only in 2006 was there a slight increase in the fledging success (42.9%, up from 39.0% in 2005). Among other things, she will be looking at whether nestlings are spending more time in their nest boxes in recent years compared to earlier years.

Karen Fischer continues her thesis work on the habitat use and overlap with commercial fisheries of Black-footed and Laysan Albatrosses (*Phoebastria nigripes* and *P. immutabilis*) during the post-breeding season at OSU with **Dan Roby** and **Rob Suryan**; see the Alaska regional report for details.

Nathalie Hamel of the School of Aquatic and Fishery Sciences, University of Washington (UW) continued her PhD work with a new look at the spatial foraging ecology of Common Murres (*Uria aalge*) nesting on Tatoosh Island. She is using ratio tracking to link the foraging distribution of murres with chick provisioning.

Scott Pearson, Julia Parrish, Tom Good and **Peter Hodum** continued their comparative study of foraging ecology and reproductive success of Rhinoceros Auklets (*Cerorhinca monocerata*) on Protection and Tatoosh Islands, WA. They are assessing diet composition and quality, and are coupling these with breeding phenology and success measures. These parameters are being compared between years and sites, with Protection and Tatoosh representing inshore Puget Sound and transitional outer coast marine habitats, respectively. In addition, they have collected preliminary stable isotope analysis data to reconstruct auklet

diet. The project also includes multi-year population monitoring of Tufted Puffins (*Fratercula cirrhata*) on Tatoosh. Pearson visited historically occupied puffin breeding islands in the San Juan Islands, Strait of Juan de Fuca and outer coast to assess current occupancy. In the Strait and San Juans, only Smith and Protection islands have retained breeding populations. Several rocks and islands on the outer coast with historically small populations were not occupied during the 2007 nesting season.

Joanna Smith continues her PhD at UW with **Julia Parrish** on the foraging ecology and habitat use of Common Mergansers (*Mergus merganser*) and Juan Fernandez Petrels (*Pterodroma externa*). Jo also joined the Canadian Recovery Team (Chair **Ken Morgan**) for Short-tailed Albatross (*Phoebastria albatrus*) and Pink-footed Shearwaters (*Puffinus creatopus*)

OTHER PROJECTS—OREGON

Graduate student **Annie Pollard** is studying mammalian predation on Leach's Storm-Petrels (*Oceanodroma leucorhoa*) under **Jan Hodder** at the Oregon Institute of Marine Biology, in cooperation with the U.S. Fish and Wildlife Service. In summer 2006, evidence of high mammalian predation on Leach's Storm-Petrels was found on the Saddle Rock Colony on the southern Oregon (OR) coast. In 2007, Pollard used infrared cameras to determine that raccoons (*Procyon lotor*) and river otters (*Lutra canadensis*) were getting onto the island and preying on storm-petrels. By collecting bird carcasses and scat of raccoon and river otters, she determined that between 0 and 47 birds are eaten nightly between the months of February and October, with predation occurring on 64% of nights. Nest occupancy and density on Saddle Rock were much lower than in 1979–1996, and on nearby Hunter's Island, which has no mammalian predators, occupancy and density were much higher than on Saddle Rock. The findings suggest that mammalian predators are severely restricting storm-petrel nesting in this colony.

Rob Suryan (OSU) pursued several projects in 2007, including foraging patterns and habitats of nesting Short-tailed Albatrosses (see regional report for Hawai'i and the Pacific), albatross habitats and fishery interactions off Alaska (see the Alaska regional report), California Current top predators and protected areas, seabird surveys along the Newport Hydrographic Line, and Common Murre reproductive and foraging ecology.

The California Current Top Predator Hot Spots and Marine Protected Areas study is a collaboration with **Bill Sydeman** (Farallon Institute for Advanced Ecosystem Research). We have started by analyzing nine years of remote sensing data (chlorophyll *a*) for the California Current Large Marine Ecosystem. We will be assessing knowledge gaps and will provide recommendations for marine protected areas along the west coast of the US.

In 2007 Suryan began conducting monthly seabird and marine mammal surveys along the Newport Hydrographic Line, 1–25 nm offshore from Newport, OR. **Bill Peterson** (NMFS) conducts long-term biological and physical oceanographic sampling along this line, and he has allowed observers to ride along and survey between sampling stations. Objectives are to determine the distribution and species composition of upper-trophic-level species in relation to primary production, zooplankton abundance, and physical features. The data will contribute to long-term ecological research along this important oceanographic sampling line. The surveys also will permit assessment of seasonal and annual changes in abundance and distribution that may affect carcass deposition rate on local beaches.

Suryan initiated research in 2007 on Common Murre reproductive biology and foraging ecology at Yaquina Head, Newport, in collaboration with **Amanda Gladics** (USFWS) and **Michelle Schuiteman** (Oregon Sea Grant fellow). Yaquina Head is home to a very large murre colony that is easily viewed by visitors to the Yaquina Head Outstanding Natural Area (Bureau of

Land Management). The work resumes earlier studies by **Julia Parrish** (UW), and hopefully it will become part of the long-term coastal research and monitoring program. Study of this colony is also relevant because it is at the beginning of the Newport Hydrographic Line.

Maura Naughton, David Pitkin, Roy Lowe, and Khem So (USFWS) and **Craig Strong** (Crescent Coastal Research) have worked over the past year on the Catalog of Oregon Seabird Colonies. The catalog is in review for publication in the USFWS Biological Technical Publication Series.

SOUTHERN CALIFORNIA

Compiled by **Dan Robinette**

Nina Karnovsky (Pomona College) and three undergraduate students, **Zachary Brown, Nell Baldwin and Derek Buchner**, studied the foraging behavior of Dovekies (*Alle alle*) in Hornsund Fjord, Spitsbergen (see regional report for the North Atlantic).

In retirement, **Charlie Collins** continues his field studies: breeding of California Least Terns (*Sternula antillarum browni*) at Seal Beach Naval Weapons Station, and survival of Black Skimmers (*Rhynchops niger*); he found two 18-year-olds skimmers and one 19-year-old in summer 2007. He also is working up a variety of accumulated data for publication.

Dan Robinette and **Julie Howar** (PRBO Conservation Science) completed the ninth year of seabird monitoring at Vandenberg Air Force Base (VAFB). Located between Point Conception and Point Sal, VAFB hosts breeding colonies of Brandt's Cormorants (*Phalacrocorax penicillatus*), Pelagic Cormorants (*P. pelagicus*), Pigeon Guillemots (*Cephus columba*), Western Gulls (*Larus occidentalis*), Black Oystercatchers (*Haematopus bachmani*), and endangered California Least Terns. The results of

2007 breeding surveys indicated a return to normal breeding conditions after the 2004–2006 warm-water anomaly that depressed spring/summer productivity in the northern California Current. However, reproductive success for Western Gulls and Black Oystercatchers declined in 2007, indicating a lagged response to the anomaly. Both species forage heavily in the intertidal habitat at VAFB. PRBO continued the monitoring of top predators inside and outside of the Vandenberg Marine Ecological Reserve, collecting four months of baseline data prior to boundary modification of the reserve. On 21 September 2007, the reserve was expanded and renamed Vandenberg State Marine Reserve under California's Marine Life Protection Act. PRBO also monitors endangered California Brown Pelican (*Pelecanus occidentalis californicus*) roost utilization along the coastal boundary of VAFB. The 2006–2007 peak in pelican abundance was delayed by 1–2 months, but it was the highest observed in seven years of monitoring.

In 2007, **Phil Capitolo, Jeff Davis**, and **Laird Henkel** of the University of California at Santa Cruz (UCSC) completed their third year of aerial photographic surveys of Brandt's and Double-crested (*P. auritus*) Cormorant colonies in southern California. The project is under contract with California Department of Fish and Game–Office of Spill Prevention and Response (OSPR; **Julie Yamamoto**). **Breck Tyler** was principal investigator. These surveys resumed the annual monitoring of cormorants in southern California from 1991 to 2003 by Humboldt State University. UCSC also conducted aerial photographic surveys of Western Gull colonies at Prince, Anacapa, Santa Barbara, and San Nicolas Islands under contract with the U.S. Fish and Wildlife Service (USFWS; **Nanette Seto** and **Tara Zimmerman**). Capitolo and Henkel conducted ground-truthing surveys of the gull colony at East Anacapa Island with **Harry Carter** and **Percy Hébert** (Carter Biological Consulting).

Laurie Harvey (National Park Service) continues to oversee seabird projects in the Channel Islands National Park

(CINP) under the Montrose Settlements Restoration Program (MSRP). In 2007, four seabird habitat restoration projects were either planned, initiated, or continued under the second year of MSRP. Reproductive effort, success, and phenology of Cassin's Auklets (*Ptychoramphus aleuticus*) were monitored on Scorpion Rock (Santa Cruz Island) as well as at a reference site at Prince Island (San Miguel Island) by **Josh Adams** (U.S. Geological Survey). A new artificial nest burrow design was tested in spring 2007; artificial burrows were replaced at both sites in early fall 2007. Future plans include revegetation and soil stabilization on Scorpion Rock. Reproductive effort, success, and phenology of Ashy Storm-Petrels (*Oceanodroma homochroa*) were monitored on Orizaba Rock and 4 sea caves at Santa Cruz Island by **Harry Carter** (Carter Biological Consulting), **Bill McIver** (USFWS), and Harvey. Prototypes of artificial nest crevices were developed and placed at two colony sites and evaluated for possible visitation by storm-petrels. Temperatures of nest box prototypes were measured and compared to temperatures of known and active nest sites. Future plans include installation of more artificial habitats, social attraction, and egg collections for contaminant monitoring. Harvey monitored reproductive effort, success, and phenology of Xantus's Murrelets (*Synthliboramphus hypoleucus*) at Santa Barbara Island (SBI). A plant nursery was constructed on SBI; native plants were propagated throughout the year, and a test plot was planted in fall 2007 to study habitat rehabilitation for nesting murrelets. Future plans include expanded revegetation efforts and social attraction for Cassin's Auklets. Baseline population surveys of Xantus's Murrelets and other seabird species were conducted at San Miguel Island by Harry Carter, Percy Hebert, and **Darrell Whitworth** and **Josh Koepke** (California Institute of Environmental Studies). Future plans may include rat eradication.

Mike Horn (California State University, Fullerton) continued his long-

term project to collect manuscripts on the food and foraging of nesting terns and skimmers in southern California for submission to *Studies in Avian Biology*. **Jeanette Hendricks**, a graduate student under Horn, studied the foraging locations and diet of Elegant Terns (*Thalasseus elegans*) at the restored and expanded Bolsa Chica Ecological Reserve on the coast of Orange County during summer 2007. She is investigating whether adult terns will forage in the newly created full tidal basin adjacent to the nesting area, or will continue to feed mainly in the ocean as before the restoration. Results from the first season indicated mostly ocean foraging. Jeanette plans to extend the study for a second season in 2008.

Lisa T. Ballance and **Robert L. Pitman** continue to conduct seabird surveys as a regular part of the marine mammal and ecosystem assessment cruises of the Southwest Fisheries Science Center (SWFSC), National Oceanic and Atmospheric Administration (NOAA) Fisheries. Two areas are monitored regularly: (1) The California Current (US–Mexico border to US–Canada border, seaward to 300 nautical miles offshore) is surveyed every three years during June–November, using 120 sea days aboard one NOAA research vessel. The most recent survey was conducted in 2005; the next is planned for 2008. This project includes collaboration with a number of National Marine Sanctuaries along the west coast, whereby marine mammal and ecosystem assessments are conducted in the sanctuaries at a fine spatial resolution. (2) The eastern tropical Pacific (waters between the US–Mexico border, Hawaii, and Peru) is surveyed every three years during August–November, using 240 sea days aboard two NOAA research vessels. The most recent survey was conducted in 2006; the next survey is planned for 2009. Current analytical projects include documentation of population growth and diet of Masked Boobies (*Sula dactylatra*) on Clipperton Island; a distribution atlas of the seabirds of the eastern tropical Pacific; and a joint project with **Bill Walker** on diets of Black-footed and Laysan Albatrosses (*Phoebastria nigripes* and

P. immutabilis). Ballance has also been involved in meetings and subsequent discussion with the National Marine Sanctuaries, USFWS, and academic institutions regarding standardization of methods for collecting at-sea data on seabirds. The data-entry program designed and maintained by the SWFSC has been modified to allow for simultaneous entry of marine mammal data. Both programs (for seabird strip transect data and for seabird and marine mammal data) are freely available. Contact Lisa. Ballance@noaa.gov for details.

Kathy Keane (Keane Biological Consulting [KBC]) continues to monitor the California Least Tern nesting population in Los Angeles Harbor. Least Terns initiated 710 nests in 2007. In 2006, KBC conducted a study in the Los Angeles Harbor for OSPR. The purpose of the study was to determine whether Least Terns would use artificial feeding sources that could be quickly mobilized and stocked with anchovies or mosquito fish in the event of an oil spill. Least Terns used the pools but on a very limited basis; other measures will be necessary to lure or deter the species away from waters fouled by oil. Several assistants helped with these studies. KBC is also monitoring a dredging and restoration project in Upper Newport Bay, Orange County, to ensure that development activities avoid the Least Tern nesting area and other endangered bird species. Finally, KBC is compiling a database for USFWS, Portland, on the skimmer and all tern species in California.

NON-PACIFIC UNITED STATES

Compiled by **Melanie J. Steinkamp**

Under the guidance of **Patrick Jodice** of U.S. Geological Survey (USGS) South Carolina Cooperative Research Unit and Clemson University

(CU), research continued on seabird colonies in South Carolina (SC). **Lisa Ferguson Eggert** (CU) continued her PhD research focusing on behavioral and physiological responses of seabirds at protected colonies. **Elena Sachs** (CU) completed her MS research examining provisioning behavior in brown pelicans (*Pelecanus occidentalis*) at a SC colony, as well as proximate composition and energy density of seabird prey from SC nearshore waters. **Lisa Wickliffe** (CU) completed her field research examining the relationship between seabird foraging activities and commercial shrimp trawling activity. In cooperation with SC Department of Natural Resources, the lab also conducted and published an analysis of long term nest count data for pelicans and terns in South Carolina.

Jeff Spendelow of USGS–Patuxent Wildlife Research Center continues to coordinate a long-term cooperative research project on the metapopulation dynamics and ecology of endangered Roseate Terns (*Sterna dougallii*) in the Massachusetts–New York region. An analysis of temporal variation in survival and movement rates of adults based on 19 years of capture-recapture data will be presented in November in Spain at a symposium organized by **Ian Nisbet** on the comparative demographics of temperate and tropical Roseate Terns. In 2007, Jeff conducted breeding season fieldwork in Buzzards Bay, Massachusetts, in collaboration with the Buzzards Bay Tern Project staff who are under the direction of **Carolyn Mostello** (Massachusetts Division of Fisheries and Wildlife). In August he resighted and identified banded Roseate Terns from the east side of Buzzards Bay around the north and east sides of Nantucket Sound. Coworkers were **Ian Nisbet**, **Edie Ray** (Nantucket Conservation Foundation), **Katie Blake** (graduate student at Antioch University), and **Becky Harris**, **Ellen Jedrey**, and other staff of the Coastal Waterbird Program of the Massachusetts Audubon Society. In 2004–2007, more than 2000 adult Roseate Terns have been color-banded at the 3 Roseate Tern colony sites on

Buzzards Bay. Work from mid-July to mid-September 2007 has not been fully summarized but is expected to result in more than 1200 identifiable sightings from at least 6 locations. As was the case in 2006, several birds were sighted either at 3 different places, or at Point A, Point B, and back at Point A again, indicating multiple trips around Nantucket Sound during post-breeding dispersal. More research is needed to determine when and at what heights Roseate Terns may be moving through the Horseshoe Shoals area of Nantucket Sound, which is the proposed site of a wind turbine array.

Gal Ribak (University of South Dakota) is conducting research on hydrodynamic aspects of underwater foraging in waterbirds. The objective is to better understand the physical limitations, energetic requirements, and foraging strategies of birds feeding underwater. Recent projects focused on the mechanical work of submerged swimming in captive Great Cormorants (*Phalacrocorax carbo*). Current projects involve the development of a new method to measure buoyancy of diving birds during voluntary dives, and a study of the underwater agility and maneuvering capabilities of captive cormorants (*Phalacrocorax* spp). The projects are done in collaboration with **Daniel Weihs** and **Zeev Arad** from the Technion (Israel).

The American Bird Conservancy (ABC) recently hired **Jessica Hardesty** as their full-time Seabird Program Director. ABC's seabird program focuses on eliminating the greatest threats to seabird populations throughout the Western Hemisphere by cooperative work with government agencies, other non-governmental organizations, and researchers, to facilitate conservation, education, and advocacy. Current projects address the mortality of seabirds in fisheries, impacts of invasive species at breeding sites, and impacts of contaminants on seabird populations.

Scott Johnston and **Melanie Steinkamp** (USFWS) and **Jennifer Arnold** (American Bird Conservancy) organized a workshop of the Northwestern Atlantic Birds at Sea Conservation

Cooperative (Coop) this past January. The purpose of the Coop is to address the needs of seabirds in their offshore environments in the northwestern Atlantic—a topic that receives less attention than it deserves. Thirty workshop participants focused on developing a standardized process for quick response to oil spills. Funding proposals were drafted and working groups formed. For more information, including working group chairs, please see the Coop's website at <http://www.acjv.org/marinebirds.htm>.

In **Jim Lovvorn's** research group at the University of Wyoming, **Samantha Richman** is finishing work on diving energetics of captive White-winged Scoters (*Melanitta fusca*) using both wing and foot propulsion. Differences between energetic costs of foot propulsion alone, and propulsion by wings and feet combined, explain why deep-diving sea ducks are unique among ducks in using their wings for underwater swimming. Richman is now working with captive Cassin's Auklets (*Ptychoramphus aleuticus*), measuring the joint costs of diving and thermoregulation as related to their foraging ecology in the Channel Islands, California.

Eric Anderson's field studies of Surf (*Melanitta perspicillata*) and White-winged Scoters in Washington state are focused on identifying marine resources critical to regulation of stored reserves. (See the Washington-Oregon report for more information.) Studies by Jim Lovvorn and students **Jason Kolts** and **Chris North** on food webs that support threatened Spectacled Eiders (*Somateria fischeri*) are described further in the report for Alaska.

HAWAII AND THE PACIFIC

Compiled by **Linda Elliot**

HAWAIIAN ISLANDS

Lindsay Young continues her PhD at the University of Hawaii on the population genetics and foraging

ecology of Laysan Albatross (*Phoebastria immutabilis*). She is also the project coordinator for the Kaena Point Ecosystem Restoration Project, which will construct a predator-proof fence to help protect Laysan Albatross and Wedge-tailed Shearwaters (*Puffinus pacificus*) in the Kaena Point colony on Oahu.

David Hyrenbach is moving from Seattle to take a position as professor at Hawaii Pacific University (HPU) in Oahu. Starting in January 2008, he will be working with students enrolled in HPU's new Marine Science Masters Degree program.

Bob Day of ABR, Inc.—Environmental Research and Services (ABR) conducted radar-based studies of movements of Hawaiian Petrels (*Pterodroma sandwichensis*) on the southwestern slope of East Maui Mountain on Maui Island, with **Adrian Gall** and **Peter Sanzenbacher** of ABR. He also conducted radar-based studies of Hawaiian Petrels on Lana'i Island with **Brian Cooper** and **Jon Plissner** of ABR.

Brenda Zaun reports that the two pairs of Newell's Shearwaters (*Puffinus aruicularis newelli*) that have nested in artificial burrows on Kilauea Point National Wildlife Refuge (NWR) since 1997 and 2001 have returned and nested again in 2007. Both eggs hatched in July and the chicks were expected to fledge in October. This species typically nests in burrows on the steep, vegetated, often inaccessible slopes of interior mountains on the island of Kauai. The refuge pairs are believed to be descendents of chicks that were cross-fostered with Wedge-tailed Shearwaters in the late 1970s. Their nesting behavior is closely monitored with the use of a Trailmaster active infrared transmitter and camera as well as Passive Integrated Transponders (PIT tags) on each adult. The tags allow us to determine new information on nesting behavior of this species, including length of incubation, incubation shifts, chick provisioning frequency, times of arrivals and departure of adults, first emergence of chick from the burrow, and overall parental investment. In 2007, capillary tubes were applied to two of the birds to

determine maximum diving depth, with the assistance of Nick Holmes (Kauai Endangered Seabird Recovery Project). A Newell's Shearwater attraction project was also initiated. Newell's calls are broadcast each night from two stereo speakers placed in the general area of the nests. Several artificial nest boxes, identical to the ones that are now in use, have been placed in the area in the hope that prospecting birds will utilize them.

The hatching success of Laysan Albatrosses at Kilauea Point NWR and other north-shore areas was artificially increased this year, by addition of 34 eggs taken from incubating adults at the Navy's Pacific Missile Range Facility (PMRF) on the south side of Kauai. Because of the potential FOR bird-aircraft collisions at PMRF, the Navy has had an abatement program for almost two decades, in cooperation with the United States Department of Agriculture–Wildlife Services. This is the third year of the partnership with the Navy on the "albatross egg swap program." The Navy purchased two incubators to house the eggs. A refuge biologist determined egg viability through candling at all nests, and inviable eggs were replaced with viable ones under incubating adults. Eggs that were artificially incubated had a low hatch rate; it was discovered that failure to hatch was correlated with time in the incubator, suggesting that earlier placement of the eggs and/or longer natural incubation could increase hatching success.

Rachel Seabury-Sprague completed her fieldwork at Kilauea Point National Wildlife Refuge (NWR), Kauai for her PhD research on Laysan Albatrosses. She is examining glucocorticoid physiology in adults during nesting and chick rearing, and the proximate triggers of fledging; she is integrating morphology, energetic reserves, and stress hormones. She placed radio transmitters on 17 pairs of adults this year and monitored their returns to the colony throughout the entire chick rearing period. This study will give some insight into the frequency of adult provisioning over the course of the chick rearing period, and how this

may affect fledgling growth rate and fledge date.

The northwestern Hawaiian archipelago was designated in 2006 as the Papahānaumokuākea Marine National Monument (MNM). The new superintendent of the monument, which includes the Hawaiian Islands National Wildlife Refuge and Midway Atoll National Wildlife Refuge, is **Susan White**. There has been some reorganization; USFWS staff who were formerly assigned to the Remote Islands Complex and now report to White include **David Zabriskie**, **Cindy Rehkemper**, **Dominique Horvath**, and all seasonal Biological Technicians at Laysan Island.

Seabird monitors were present at some islands in the monument throughout 2007, including biologists at French Frigate Shoals and Laysan Island in the Hawaiian Islands NWR, and **John Klavitter** at Midway Atoll NWR. Other islands were visited only briefly, as the opportunity arose to take advantage of vessels going to those sites.

Active ecological restoration continues at Laysan Island. This project was started in 1991 with the eradication of the introduced grass *Cenchrus echinatus*. The complete eradication of that species has benefited not only endangered land birds, but also several other petrel species, including the Bonin Petrel (*Pterodroma hypoleuca*), Wedge-tailed Shearwater, Christmas Shearwater (*Puffinus nativitatis*), Bulwer's Petrel (*Bulweria bulwerii*), and Tristram's Storm-Petrel (*Oceanodroma tristrami*). The invasive species had displaced the native bunchgrass and reduced nesting habitat quality for all the birds to a measurable extent. Refuge staff have now moved on to restoring the native community of plants, insects, and land birds at Laysan that were extirpated during a plague of rabbits at the turn of the last century. As far as possible, they are translocating, propagating, and outplanting many of the native plant species that were documented in early surveys or in the pollen-core record. They are also embarking on an eradication program for 3 additional invasive plant species,

and are exploring methods to control or eliminate introduced ants that may be affecting small petrels as well as native insects and plants.

Refuge staff are also doing urgently needed restoration work at Midway Atoll to beat back the extremely aggressive *Verbesina encelioides*. This invasive plant transforms open sand flats into tall, dense thickets, thereby reducing the reproductive success of albatrosses on the islands.

Linda Elliott of the Hawaii Wildlife Center (HWC) provided professional training in emergency oiled-seabird response to biologists and technicians of Hawaii's Division of Forestry and Wildlife (DOFAW). HWC is active in the Hawaii Area Committee for oiled wildlife response, participating in annual drills and meetings throughout the year. Linda is also providing consultation, protocol development, and staff training at the request of both the state and private industry for the Save our Shearwater program on Kauai. This program rescues seabirds that are downed due to light pollution, including the highly threatened Newell's Shearwater (Ua'u) and the endangered Hawaiian Petrel (A'o). HWC will also be providing training in the rescue of downed seabirds to crews of ferries and cruise ships, in partnership with DOFAW. Linda gave a presentation at the Seabird Workshop for the development of skills to recognize and document threats to seabirds, especially threatened species. She participated in two workshops on Oahu, the Seabird Necropsy Workshop presented by **Nick Holmes** (Kauai Endangered Seabird Recovery Project) and **Hannah Nevins** (Moss Landing Marine Lab and Seabird Health Study). HWC continues to provide consultation to wildlife agencies on seabird recovery programs throughout the archipelago. The group has raised 66% of the funds necessary for building Hawaii's first wildlife recovery center on donated land on Hawaii Island. HWC will serve all Hawaiian Islands, including the Leeward Islands.

Demographic monitoring of Laysan and Black-footed (*Phoebastria nigripes*)

albatrosses, based on mark/recapture of banded individuals, continued in the Northwestern Hawaiian Islands under the direction of **Marc Romano**, **Maura Naughton** and **Beth Flint** (USFWS). In addition to the existing monitoring sites at Midway Atoll and Tern Island, French Frigate Shoals in Papahānaumokuākea Marine National Monument, the new protocols were implemented at Laysan Island with the help of **Nick Metheny** and **Scott Freeman**. This work was supported by USFWS staff in Hawaii, including **John Klavitter**, **Cindy Rehkemper**, **David Zabriske** and **Angela Anders**. Additional support was provided by **Bill Kendall**, **Sarah Converse** (U.S. Geological Survey, Patuxent Wildlife Research Center, Maryland) and **Lindsay Young** (University of Hawaii).

Beth Flint attended the Special International Meeting of the Pacific Seabird Group that was held in Lukang, Taiwan, in September 2007. She presented a paper entitled "Seabird Population Monitoring in the US Tropical Pacific: its Value and its Limitations for Managing Wildlife" and a presentation at the pre-conference workshop on minimizing human-seabird conflicts. Flint also participated in a workshop sponsored by the Pelagic Fisheries Research Program at the University of Hawaii to work toward developing integrated models of albatross populations and the effects of fisheries. She also worked with **Joe Arceneaux** (National Oceanic and Atmospheric Administration—Fisheries) and **Holly Freifeld** to teach seabird identification techniques to fisheries observers in the Hawaiian pelagic longline fishery.

Maura Naughton, Marc Romano and **Tara Zimmerman** (USFWS, Office of Migratory Birds and Habitat Programs) worked with a diverse group of partners to develop a Conservation Action Plan for Black-footed Albatross and Laysan Albatross. This plan was crafted with the help of many individuals, who represented a wide array of federal and state agencies, universities, fishery management councils, nonprofit organizations and private consulting firms.

PACIFIC ISLANDS AND NEW ZEALAND

Staff and volunteers of the Pacific Remote Islands NWR Complex continued their program of monitoring seabird populations at the 7 Refuges of the Complex (Johnston Atoll, Howland Island, Baker Island, Jarvis Island, Kingman Reef, Palmyra Atoll, and Rose Atoll NWRs). Only one of those sites has staff stationed in the field—**William Smith**, Refuge Manager at Palmyra Atoll NWR.

An extensive project is underway on Fiji to designate Important Bird Areas (IBAs) and to restore habitats for seabirds by removing introduced predators. BirdLife International is evaluating the islands for IBA designations; they have provisionally identified 61 sites of importance to seabirds, including six that may meet Globally Threatened criteria. Nine islands are being studied for the feasibility of removing rats, and one (Vatuiria) has recently been declared rat-free. Partners on Fiji include local communities, whose involvement is also crucial for preventing the reintroduction of predators. The Packard Foundation is providing major support. Other funding has been received from the Critical Ecosystem Partnership Fund, Australian Regional Natural Heritage Programme. Technical assistance was supplied by the New Zealand Department of Conservation and the Pacific Invasive Initiative. (See also the Conservation Report in this issue of *Pacific Seabirds*.)

Sandy Bartle continues some seabird work at the Museum of New Zealand in Wellington, where he is Curator of Birds. He is currently completing a large paper with **David Ainley** and **Jean-Claude Stahl** on the distribution and abundance of gadfly petrels (20 species of *Pterodroma* and *Pseudobulweria*) throughout the Pacific. The manuscript is based on the work of Ainley and the late **Larry Spear** in the Eastern Pacific from 1980 to 1995, and also incorporates a summary of previous distribution data and synthesizes distribution, abundance and marine habitat

use for all these species. This ambitious enterprise is due for completion in early 2008; it will be of considerable interest to both seabird biologists and conservation managers.

JAPAN

Rob Suryan of Oregon State University (OSU) and collaborators continued to examine the at-sea distribution and marine habitat use of the endangered Short-tailed Albatross (*Phoebastria albatrus*). Collaborators are the Yamashina Institute for Ornithology (Fumio Sato, Kiyooki Ozaki, Noboru Nakamura), the Japan Ministry of Environment (Noriko Moriwake, Naoki Amako), USFWS (Greg Balogh), University of Massachusetts (Paul Sievert), and OSU (Suryan). This was the fifth year of satellite tracking and the second year of tracking adults during the chick-rearing period. In both years, they also were able to capture one to three months of post-breeding migration, before the transmitters lost battery power or fell off the bird during molt. A couple of birds have passed relatively near the Bonin Islands, where it is hoped a new Short-tailed Albatross colony can be reestablished. This has fueled interest of the Ministry of Environment, Japan, to continue the tracking studies in 2008.

SOUTH AMERICA

During 2007, **Liliana Ayala** was involved in many projects in Peru. She studied the distribution and abundance of the Wedge-rumped Storm Petrel (*Oceanodroma tethys kelsalli*), which breeds on islands off the Peruvian coast. Very little is known about the breeding biology and numbers of this subspecies. It was first found breeding in 1912 in natural rock crevices on Gallinazo and Guaca Islets in the Pescadores Islands and on San Gallan Island off central Peru. Ayala found this storm-petrel breeding on only 4 islands—Chao, Corcovado, Ferrol, and Santa. Chimbote Bay and the surrounding area therefore are an important breeding locality. Chimbote is near

an important upwelling area between 7° and 9° S; it also is an important fishing port for the Peruvian anchoveta (*Engraulis ringens*). The nesting period of *O. t. kelsalli* appears to correspond with the peak period of anchoveta recruitment in Peru. Co-researchers on this study are **Raul Sanchez-Scaglioni** and **Samuel Amoros** of the Peruvian Association for Conservation of Nature (APECO), and **Luis Felipe** of the Directorate of Hydrography and Navigation.

Ayala also worked on bycatch of albatross and petrels in northern Peru, where a survey was conducted in four fishing towns that do longline and gillnet fishing. The survey consisted of questions regarding gear type, fishing season, distances, target fish species, type of bait, whether the catch of albatross was incidental or intentional, and other interactions. Forty-eight fishermen were interviewed. The results indicate fishing interactions with albatross, especially with gillnet vessels. This intentional catch might be high in winter (shark season), when fishermen sail many miles, which increases their expenses. If a lack of target species forces fishermen to catch seabirds as food, intentional bycatch may be higher during the season. Ten percent of fishermen admitted that they capture albatrosses to eat (all of them use gillnets); 50% said they have albatross bands or had seen bands. Twenty-six percent of fishermen described the Galapagos Waved Albatross (*Phoebastria irrorata*) as *pajarotes* or *pajaronas* [colloquial for “very big birds”].

Another activity was observing onboard longline vessels. Observers gathered the following information from each longline set: date and time of deployment, geographic position at the beginning and end of deployment, speed of deployment, date and time of retrieval, geographic position at the beginning and end of retrieval, speed of retrieval, mainline length, mainline material, etc. This study is being funded by Rufford Small Grants, The Duke Center for Marine Conservation and The Oak Foundation.

Co-researchers on this study are **Samuel Amoros**, **Shaleyale Kelez** (Duke University student) and **Cynthia Cespedes** of the National Institute of Natural Resources (INRENA). Ayala participated in two workshops related to bycatch: Seabird-Fisheries Interactions, organized by BirdLife and the American Bird Conservancy, and the Waved Albatross Action Plan, organized by the Agreement on the Conservation of Albatross and Petrels.

Ayala is a co-researcher on the conservation status of Peruvian Terns (*Sterna lorata*) in Paracas National Reserve. She and colleagues have found a breeding locality of this critically endangered species and identified some conservation threats. This study is being funded by Conservation International (CI). Other researchers are Samuel Amoros and **Patricia Saravia** (INRENA). Ayala also has recently started research on the conservation of the Humboldt Penguin (*Spheniscus humboldti*) in Northern Peru, with Sanchez-Scaglioni (GEA Peru). They will develop a conservation plan for Humboldt Penguin in Huarney, in consultation with fishermen, local authorities, and private enterprises. Also with Sanchez-Scaglioni and Felipe, Ayala is involved in the project “Microclimate and nesting choice: Conservation areas for threatened seabirds in Peru.” They will determine microclimate differences between nesting sites and places without nests. In addition, the team will evaluate the breeding biology of the threatened Peruvian Diving-Petrel (*Pelecanoides garnotii*) and Markham's Storm-Petrel (*Oceanodroma markhami*), and their relationship with microclimate. This study is being funded by CI. A similar project in January 2007 studied the breeding biology of Antarctic Terns (*Sterna vittata*) and their relationship with microclimate on Punta Crepin (King George Island, Antarctica). That study was funded by Peruvian Antarctic Institute.

Finally, APECO promotes Ayala's work in Peru; she is an associate researcher in this nongovernmental

organization, and she hopes to continue with her job and her main interest, seabird conservation

NORTH ATLANTIC

Compiled from other reports

Ann Harding (Alaska Pacific University) has just completed the last season of a large 4-year study on Dovekies (*Alle alle*) in East Greenland. This is a collaborative project with Karnovsky, **David Gremillet** (Centre d'Ecologie et Physiologie Energétiques), **Geir Gabri-**

elsen (Norwegian Polar Institute), and **Jorg Welcker** (Norwegian Polar Institute) to compare populations of Dovekies breeding in contrasting oceanographic regions of the Greenland Sea.

Nina Karnovsky (Pomona College) and three undergraduate students, **Zachary Brown**, **Nell Baldwin** and **Derek Buchner**, studied the foraging behavior of Dovekies in Hornsund Fjord, Spitsbergen. They assessed the oceanographic conditions adjacent to the colony during at-sea surveys aboard the research vessel *Oceania*, and made measurements of diets, reproductive success, and chick growth at the colony. They determined the lengths of foraging trips through use of passive

integrated transponders (PIT tags) and observations of marked birds, and they placed time-depth recorders on foraging adults to examine diving behavior. They documented their field season in a blog (<http://projects.pomona.edu/arctic/>). These measurements will be compared to those made by Ann Harding and her team at Kap Høgh, Greenland; Jorg Welcker in Kongsfjorden, Spitsbergen; **Katarzyna Wojczulanis-Jakubas** and **Dariusz Jakubas** (Poland) in Magdalena Fjord, Spitsbergen; and **Harald Steen** (Norway) at Bjørndalen, Spitsbergen.

Carsten Egevang and his coworkers put 50 geolocators on Arctic Terns (*Sterna paradisaea*) in Greenland.

PUBLICATIONS OF THE PACIFIC SEABIRD GROUP

The Pacific Seabird Group publishes symposia and other works. **PSG Symposia** are occasionally held at Annual Meetings; those which have been published are listed below. **Technical Reports** prepared by PSG working groups also are listed. *To order one of these PSG publications, please see instructions after each item.*

Abstracts of papers and posters given at PSG meetings are published annually. Abstracts for meetings of 1974 through 1993 appeared in the PSG Bulletin (Volumes 2–20); for meetings of 1994 through 2003, in Pacific Seabirds (Volumes 21–30); and for meetings of 1997 and later, at www.pacificseabirdgroup.org

PSG publishes the journals *Pacific Seabirds* (www.pacificseabirdgroup.org) and *Marine Ornithology* (www.marineornithology.org). Current and past issues of both journals are available online or by subscription. Back issues may be obtained online; those of Pacific Seabirds also are available from the PSG Treasurer (order form on last page).

SYMPOSIA

SHOREBIRDS IN MARINE ENVIRONMENTS. Frank A. Pitelka (Editor). Proceedings of an International Symposium of the Pacific Seabird Group, Asilomar, California, January 1977. Published June 1979 in Studies in Avian Biology, Number 2. *Available free of charge at* <http://elibrary.unm.edu/sora/Condor/cooper/sab.php>

TROPICAL SEABIRD BIOLOGY. Ralph W. Schreiber (Editor). Proceedings of an International Symposium of the Pacific Seabird Group, Honolulu, Hawaii, December 1982. Published February 1984 in Studies in Avian Biology, Number 8. *Available free of charge at* <http://elibrary.unm.edu/sora/Condor/cooper/sab.php>

MARINE BIRDS: THEIR FEEDING ECOLOGY AND COMMERCIAL FISHERIES RELATIONSHIPS. David N. Nettleship, Gerald A. Sanger, and Paul F. Springer (Editors). Proceedings of an International Symposium of the Pacific Seabird Group, Seattle, Washington, January 1982. Published 1984 as Canadian Wildlife Service, Special Publication. *Out of print; available free of charge at* www.pacificseabirdgroup.org

THE USE OF NATURAL VS. MAN-MODIFIED WETLANDS BY SHOREBIRDS AND WATERBIRDS. R. Michael Erwin, Malcolm C. Coulter, and Howard L. Cogswell (Editors). Proceedings of an International Symposium at the first joint meeting of the Colonial Waterbird Society and the Pacific Seabird Group, San Francisco, California, December 1985. Colonial Waterbirds 9(2), 1986. \$12.00. *Order from:* Ornithological Societies of North America, PO Box 1897, Lawrence, Kansas 66044; phone (800) 627-0629; no online orders.

ECOLOGY AND BEHAVIOR OF GULLS. Judith L. Hand, William E. Southern, and Kees Vermeer (Editors). Proceedings of an International Symposium of the Colonial Waterbird Society and the Pacific Seabird Group, San Francisco, California, December 1985. Published June 1987 in Studies in Avian Biology, Number 10. \$18.50. *Available free of charge at* <http://elibrary.unm.edu/sora/Condor/cooper/sab.php>

AUKS AT SEA. Spencer G. Sealy (Editor). Proceedings of an International Symposium of the Pacific Seabird Group, Pacific Grove, California, December 1987. Published December 1990 in Studies in Avian Biology, Number 14. *Available free of charge at* <http://elibrary.unm.edu/sora/Condor/cooper/sab.php>

STATUS AND CONSERVATION OF THE MARBLED MURRELET IN NORTH AMERICA. Harry C. Carter, and Michael L. Morrison (Editors). Proceedings of a Symposium of the Pacific Seabird Group, Pacific Grove, California, December 1987. Published October 1992 in Proceedings of the Western Foundation of Vertebrate Zoology, Volume 5, Number 1. \$20.00. *Order from PSG Treasurer* (order form on last page), *or available free of charge at* www.pacificseabirdgroup.org

THE STATUS, ECOLOGY, AND CONSERVATION OF MARINE BIRDS OF THE NORTH PACIFIC. Kees Vermeer, Kenneth T. Briggs, Ken H. Morgan, and Douglas Siegel-Causey (editors). Proceedings of a Symposium of the Pacific Seabird

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Group, Canadian Wildlife Service, and the British Columbia Ministry of Environment, Lands and Parks, Victoria, British Columbia, February 1990. Published 1993 as a Canadian Wildlife Service Special Publication, Catalog Number CW66-124-1993E. **Order free of charge from:** Publications Division, Canadian Wildlife Service, Ottawa, Ontario, K1A 0H3, Canada.

BIOLOGY OF MARBLED MURRELETS—INLAND AND AT SEA. S. Kim Nelson and Spencer G. Sealy (Editors). Proceedings of a Symposium of the Pacific Seabird Group, Seattle, Washington, February 1993. Published 1995 in *Northwestern Naturalist*, Volume 76, Number 1. \$12.00. **Order from PSG Treasurer** (order form on last page), **or available free of charge at** www.pacificseabirdgroup.org

BEHAVIOUR AND ECOLOGY OF THE SEA DUCKS. Ian Goudie, Margaret R. Petersen and Gregory J. Robertson (editors). Proceedings of the Pacific Seabird Group Symposium, Victoria, British Columbia, 8-12 November 1995. A special publication compiled by the Canadian Wildlife Service for the Pacific Seabird Group. Published 1999 as Canadian Wildlife Service Occasional Paper number 100, catalog number CW69-1/100E. **Order free of charge from:** Publications Division, Canadian Wildlife Service, Ottawa, Ontario, K1A 0H3, Canada, **or available free of charge at** www.pacificseabirdgroup.org

SEABIRD BYCATCH: TRENDS, ROADBLOCKS AND SOLUTIONS. Edward F. Melvin and Julia K. Parrish (editors). Proceedings of an International Symposium of the Pacific Seabird Group, Blaine, Washington, 26-27 February 1999. Published 2001 by University of Alaska Sea Grant, Fairbanks, Alaska. Publication no. AK-SG-01-01. \$40.00. **Order from publisher.**

BIOLOGY, STATUS, AND CONSERVATION OF JAPANESE SEABIRDS. Nariko Oka (editor). Proceedings of an International Symposium of the Japanese Seabird Group and Pacific Seabird Group, Lihue, Hawaii, February 2001. *Journal of the Yamashina Institute of Ornithology* 33(2); Symposium (5 papers), pp 57-147, other papers pp. 148-213. In English with Japanese abstracts. \$75.00. **Order from PSG Treasurer** (order form on last page).

OIL AND CALIFORNIA'S SEABIRDS. Harry R. Carter (convener) and Anthony J. Gaston (editor). Proceedings of a Symposium of the Pacific Seabird Group, Santa Barbara, California, February 2002. Published 2003 in *Marine Ornithology* 31(1). **Available free of charge at** www.marineornithology.org

THE BIOLOGY AND CONSERVATION OF THE AMERICAN WHITE PELICAN. Daniel W. Anderson, D. Tommy King, and John Coulson (editors). Proceedings of a Symposium of the Pacific Seabird Group. *Waterbirds*, Volume 28. Special Publication 1, 2005. Published by the Waterbird Society. \$15.00. **Order from PSG Treasurer** (order form on last page).

NEW! BIOLOGY AND CONSERVATION OF XANTUS'S MURRELET. Harry R. Carter, Spencer G. Sealy, Esther E. Burkett, and John F. Piatt (editors). First part of the proceedings of a symposium of the Pacific Seabird Group, Portland, Oregon, January 2005. Published 2005 in *Marine Ornithology* 33(2):81-159. **Available free of charge at** www.marineornithology.org

Information on presenting symposia: Pacific Seabird Group Symposia or Paper Sessions may be arranged by any member who is interested in a particular topic. Before planning a special session, refer to Meetings/Symposia Guidelines at www.pacificseabirdgroup.org; also contact the Coordinator of the Publications Committee and the Scientific Chair for the meeting.

TECHNICAL PUBLICATIONS

EXXON VALDEZ OIL SPILL SEABIRD RESTORATION WORKSHOP. Kenneth I. Warheit, Craig S. Harrison, and George J. Divoky (editors). Exxon Valdez Restoration Project Final Report, Restoration Project 95038. PSG Technical Publication Number 1. 1997. **Available free of charge at** www.pacificseabirdgroup.org

METHODS FOR SURVEYING MARBLED MURRELETS IN FORESTS: A REVISED PROTOCOL FOR LAND MANAGEMENT AND RESEARCH. Pacific Seabird Group, Marbled Murrelet Technical Committee. PSG Technical Publication Number 2. 2003. **Available free of charge at** www.pacificseabirdgroup.org

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- **Conservation News** (*submit to* Craig Harrison, Conservation Chair; e-mail charrison@hunton.com)
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- **Book reviews**
- **Letters** commenting on content of *Pacific Seabirds* or other issues
- **Art work**, such as sketches of seabirds, either accompanying a text or for publication alone

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Give the scientific name (*italicized*) after the first mention of any genus or species. English names of bird species are capitalized (e.g., Fork-tailed Storm-Petrel). Names of mammals, other taxa, and English names of bird groups are lowercase, except for proper names (e.g., blackbirds, shield fern, Steller's sea cow).

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Articles should contain the following sections, in this order: Title, Author(s), Authors' affiliations (including e-mail for corresponding author), Abstract, Key words, Introduction, Methods, Results, Discussion, Acknowledgments, Literature Cited, Tables, Figure legends, and Figures. **Other types of manuscript** may use a different organization (e.g., a review or report could contain sections on various locations); however, the same formats for Literature Cited, Tables, and Figures will apply.

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Pratt, H.D., P.L. Bruner, and D.G. Berrett. 1987. A field guide to the birds of Hawaii and the tropical Pacific. Princeton University Press, Princeton, NJ. 409 pp.

Schreiber, E.A., and R.W. Schreiber. 1988. Great Frigatebird size dimorphism on two Central Pacific atolls. *Condor* 90:90-99.

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PSG EXECUTIVE COUNCIL 2007

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